

Field Book
of
Willis Linn Jepson

If lost finder please return to
W. L. Jepson, 11 Mosswood Road,
Berkeley, California, and receive
reward. -1934.-

Putah Creek near Winters, 18 June, 1934. 1

- Drove today through Pleasant Valley from Vaca Valley. Even in so short a distance, the greater rainfall in Pleasant Valley is evidenced by the ranker wild growth along the stream banks. Drove on by the road along Putah Creek to the John Wolfskill ^{place}. As I remember the dates, John Wolfskill went to Mexico from Missouri (having been born in Kentucky) in 1828, staying there ten years, then coming to California and joining his brother William Wolfskill at Los Angeles where he stayed three years. Then he came north, spent some time with Yount in Napa Valley, and then in 1842 took up his abode on Putah Creek near the later John Wolfskill residence that I knew as a lad. While getting started here, the Vacas and Pumas

2

Wolfskill ranch, Putah Creek, Solano Co.

claimed the water rights in Putah Creek, told him he had no claim there, and ran him off. He went north to Cache Creek and took refuge with Gordon who owned a grant there. Later when Wolfskill got his claim straightened out, he returned and settled for good on Putah. It would seem that William Wolfskill joined him in this enterprise and the grant was issued in their two names. So it was that William took as his share the north side of Putah, John the south side. John divided with his brother Saschel, who built his residence near that of John's. Milton Wolfskill was on the north side of Putah, upstream. Mathew was also on the north side.

June 18, 1934

3

The horticultural interest of the John Wolfskill place is considerable. Here are the rows of old olive trees planted at the time of his first settlement - that is the oldest group is near the schoolhouse to the west. A magnificent avenue of fig trees - the Black Mission Fig - is on the Saschel Wolfskill place, but planted by John, the cuttings having been brought from Mission San Juan Capistrano, described to me as seven days journey but it must have been more than that. The original grape-vines, started from cuttings brought from Younts in Napa Valley, have been dug out for some time. The tall date palms are at the John Wolfskill house.

The original John Wolfskill house, that I knew as a lad, was shaken down by the earth-

4

quake of 1892. It is replaced by a new building - a large residence befitting the owner of the original nineteen thousand acres of the Ranch Rio de las Putas.

I met:-

1. Edward Wolfskill, a son of John by an Indian wife. This man is highly intelligent, well-educated and traveled, betraying neither in physiognomy nor in complexion his Indian ancestry except in very slight degree after you are acquainted with the fact of it. He said that in Spanish days horses were swum across Raccoon straits from Pt. San Quentin to Point Richmond, following behind a boat. This was the usual route from the south side of the Bay to the north side. The Golden Gate was an

June 18, 1934.

5

impossible way. Occasionally horses were swum across at Benicia to the Martinez shore in the same way. This was the regular place and only place along Carquinez Strait, but was seldom used. Otherwise horses were commonly taken to Sutter's Fort or above, making the trip round the heart of the Great Valley.

This "Ed" Wolfskill uses excellent English. He appears well-educated.

2. Mrs. Wilson, daughter, by his second (white) wife, of John Wolfskill. She is, says Ned Tate, about 67 years of age. She is a cultivated well-informed woman, and talks well about many things. She has an extensive acquaintance in California, takes much interest in the natural out-of-doors, and in early day California history. Her present

6

husband, Mr. Lawrence Wilson, is a lawyer and newspaper man, says Mr. Tate of Yuba Valley, who is my companion on this trip.

Mrs. Wilson was formerly Mrs. Taylor.

By her former marriage she has two sons and two daughters. Mrs.

Taylor also has two or more sisters. They ^(the sisters) were assigned portions of the grant lying east (down Putah), and mar-

ried husbands who rather promptly went through with their heritage, says Mr. Wilson. The Wilsons live on

the ^{old} John Wolfskill place. One daughter of Mrs. Wilson is at home.

3.

Wolfskill, son of Sachel Wolfkill, whom I met at the old Sachel Wolfkill place.

Also there was his nephew, a young fellow about thirty-five

June 18, 1934.

7

years old, who seemed to be the owner of the place. Mr. Wilson remarked that a heavy debt encumbers it.

It has dwindled from a magnificent

estate to 59 acres. I had some

talk with this younger chap, but

^{we} were there too brief a time to

hear anything from the older man.

The setting of these two residences on Putah Creek is very fine.

Mr. Wilson showed me in his

garden a bush of *Sphaeralcea*

*freemontii**, in flower, which he had transplanted from the wild

- that is from the second bench on

Putah Creek. ^(or lower) We want to see this wild plant. I thought it a waif.

Mr. Wilson says it is the only plant known to him. He describes it as evergreen! He has never

seen it in the hills westward,

* Not this species. See p. 9.

although in all probability it grows there. Near by ^{in Putah bed} were plants which may be regarded as brought down by the flood waters from the mountains to the west:

Eriodictyon californicum

Eriogonum dasyanthemum

Eriogonum virgatum.

The stream bed has an abundance of *Mentzelia laevis* now in fl.

Tamarix gallica is well established in the stream bottom.

Ailanthus glandulosa is a very very bad orchard pest in Pleasant Valley.

✓ No. 16,741. *Sphaeralcea fremontii* Torr. A single spreading bush, 5 feet high, on the lower terrace of Putah Creek. A few late fls. are in anthesis, but the bush is loaded with fruits, which also cover the

ground. cf. p. 7.*

No. 16,742. *Monardella villosa* Bth. On the shoulder of a little ridge running down to Putah Creek, near the road station (gasoline), "Riverview".

— The Wolfskill ranch is in Solano Co., but Winters is over the stream in Yolo Co. On this trip came with me Neat M. Tate of Vaca Valley. His letters of about this time (1934) refer to the Wolfskill grant. See Jepson Correspondence.

— The Pacific Division, American Assoc. Adv. Science met in Berkeley the week of June 19-20, 1934. *
Cont. p. 179.

* Now that I get it hour with a chance to compare it, I see that it is not at all *S. fremontii*. I call it provisionally var. *exfibulosa* Jepson.

- Dr. A. L. Grant says: "Dr. P. A. Munz has actively and vigorously built up the herbarium at Pomona College. Dr. Carl Epling has done a good deal at Westwood, considering that he has almost no money for an herbarium and that Professor Spauldor is antagonistic to systematic botany. Miss A. Eastwood has built up the Academy herbarium tremendously. Compared with these three Dr. L. R. Abrams has done much less at Stanford, relatively much less. Dr. Abrams is easy-going; he is not a pushing vigorous type." - July 3, 1934.

- Dr. L. H. Kneche of San Jose met me at the Legion of Honor Building and said: "I wish that you would come to see my establishment at San Jose. I have a fine herbarium building

July, 1934.

and the third best herbarium in the world devoted to the Mediterranean flora. I have a fine library. I bought Adolf Engler's collection of pamphlets on plant geography - 30,000 titles. I have a 4-room house which cost me \$40,000⁰⁰. My herbarium building cost me ____*. I have all this and I do nothing with it. I am not doing any botanical work at all. My time has been absorbed with building, with routine duties, and attending to finances in these disastrous times."

Kneche told me this story once before, several times maybe. He is an amiable pleasant gentleman, but the above story shows how a botanist may be sidetracked from his real job; because, he is a botanist, able and capable.
* some huge sum, I forget.

Vacaville to Rumsay
July 28, 1934

- Drove to Winters. When buying a newspaper in a drugstore I met Mrs. ^{Lawrence} Wilson of Wolfkill ranch (see ante p. 6.). Thence to Madison and then turning west up the Capay Valley. Near the center of the valley is an area with the primitive groves of *Quercus lobata* thickly dispersed over most of it. Otherwise the valley is in almond and fig orchards mainly. I saw fig trees with the entire crown killed down to the main trunk by the great frost of Dec. 10, 1932. Also apricot trees badly injured. At the head of the valley, at Rumsay, I turn left and climb over the divide east, which sep-

arates Capay Valley from the main floor of the Sacramento Valley.

- *Cercis occidentalis* is frequent in Capay Valley. I saw "groves" on flats, open to be sure, but making marked stands.

- *Eriodictyon californicum*, north of Rumsay.

- Two miles south of Rumsay, about, on the east side of the hill rising from Cache Creek ^{the valley,} is scarred by a mighty scar. It is very prominent - a land-slip and shows clearly serpentine structure. This steep bluff may have been formed by the undercutting of a bend of Cache Creek. It looks it. Such an area should be botanized in the spring.

No. 16,743. *Cephalanthus occidentalis* L.
Capay Valley, s. of Rumsay

- no. 16,744. *Trichostema* ^{lanco/atum Bn} (see p. 27). Rumsey.
 no. 16,745. *Castilleja* (see p. 27). Rumsey.

From the divide, mentioned on p. 12, one has a remarkable view down the Capay Valley. East, one is confronted with the very extensive area of foothills between the divide and the Sacramento Valley floor: on these foothills the usual arboreal and shrub vegetation:

Pinus sabiniana *Quercus douglasii*
Vitis californica " *wislizeni*
Colycauthus occidentalis
Adiantum fasciculatum
Eranthis cuneatus
Archustaphylos manzanilla
Rhus diversiloba

Noted also:

Sporocymum canisabum, 2 to 3 feet high. Not in fl. In dry bottom of cañon; erect.

I descend into a cañon and six miles from the divide (see p. 14) from Rumsey, acc. to a road sign, I stop and collect:
 no. 16,746. *Phacelia* ^{californica Engelm.} *floribunda* (B.S.)
 C.B. Wolf

no. 16,747. *Carex*.

no. 16,748. ^(Discarded) *Datisca glomerata* Bail.
 dry gulch bottom.

Further down the cañon, where it opens out into a sort of little valley - quite flat on the bench, but not a present day flood-plain floor - I collect:

no. 16,749. *Eriogonum dasyanthemum*
 no. 16,750. *Eriogonum nudum* var. *pubiflorum*

This is of the *E. nudum* group, the stems strictly erect from the crown which is tufted with a cluster of small leaves. The summer foliage and which are, doubtless, the successors to larger leaves of the spring. The bench on which these

plants grow is about 90 acres in extent, maybe more, grass land with all the vegetation now dead and white save for the *Eriogonum* which covers the whole of it uniformly and fairly densely, making a fine stand as to plant life at this season. The stand is 2 to 3 feet high, the erect stems giving the place a marked character. The stems of last year and previous years persist, stiffly erect, their surface bluish, in contrast to the living ^{dull} stems (^{terra-cotta} greenish). This combination gives the scene a distinctive look different from that of any other formation that I recall. It has a character of its own. * See p. 26.

I come to a road fork, one going east to the plains,

July 28, 1934

one going west into the hills. Thinking the latter may be the Wilbur Spr. road I take it. It is better traveled than the road over which I have come. It is soon closed by a gate, but I go through and down into a valley. Stopping at the first ranch house - a good looking one, I am told this is Cortina Valley, that there is no road to Wilbur Spr. here, that I must go out nearly to Williams. I continue ^{down} the valley; it has a ^{mountainous} *Quercus lobata* floor, is not extensive, is irregular; pass through many gates of various ranches and finally I ^{turn eastwardly and} stop a hill and go down a straight way to the Sacramento plain spread open before me.

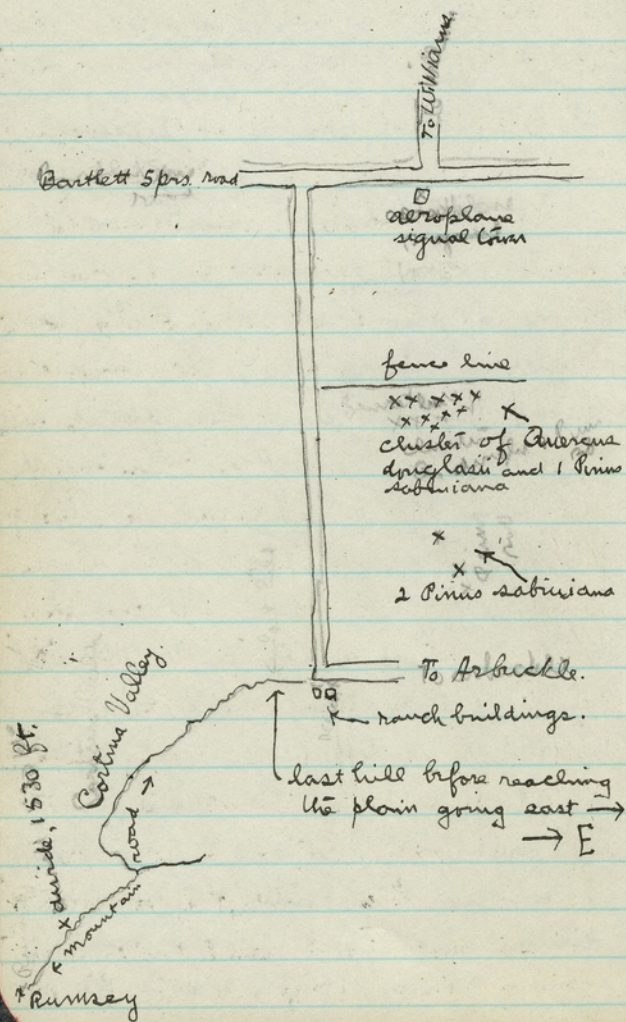
Monticola leucicaulis Cortina Valley.

At the last gate I come to the County road. At this point is a ranch house; a road from the east (Arbuckle way), comes blind with a road from the north (Williams direction). Down the slope which I have come is scattered *Quercus douglasii* and, back a little, *Pinus sabiniana*, but with much treeless areas. In the field to the east, east of the Williams County road, I see three *Pinus sabiniana* trees, young, 20 to 45 feet high, rather near together. They are too far away to be quite certain. They are in a field devoted to grain or other cultivation. There is nothing else near them. I have been looking at *Pinus sabiniana* trees all my life in the field and probably they are what I take them to

July 28, 1934.

be, waifs from higher up. About one mile north and much nearer the road is a little narrow grove of native oak. This is likewise in the field to the east of the road, the last ^(see p. 23 * at bottom) cluster of waifs going east from the foothills. Some of the trees are pretty surely *Quercus douglasii*, one is surely *Pinus sabiniana*. See sketch next page. This matter bears on the question of chaparral on these plains in early day. I see no evidence of primitive chaparral.

I travel north on the Williams road, coming to a broad much traveled road east and west with telephone poles. I turn east, come to an aviation tower signal in 2 miles or less; from this point the road ^{see * p. 22} continues east, but I turn north, which brings me to the Bartlett Shrs. road from Williams.



I stop in Williams for supper at about 6 o'clock. Then I go on to Colusa and spend the night. It has been extremely hot all day - a blazing ^{day} as I came north on the Williams road from the aeroplane signal station I came in the wind line of a fire beyond the ridge of the inner Coast Range that I had observed boiling smoke into the heavens from early morning. As soon as I entered the zone of the wind that drove from the fire I could feel at once the increased hush of the air!! The fire is so far away, 25 miles anyway, that this statement does not seem plausible and yet I believe it to be a just one. When I drove towards Colusa, after stopping at Williams, the smoke had all but ceased boiling from beyond the first

Colusa (city), July 29, 1934

ridge, but the heavy pall of smoke from the fire now filled with a red-black cloud the whole of the upper Sacramento Valley.

As I came into the Sacramento Valley a heavy smoke column indicated a fire on the plain east and south of Arbutus. The night in Colusa was very hot.

Sleep came to me at last and I slept fairly long — without a thread of clothing on my body, without even a sheet over me. (See p. 37 as to the heat)

I drive easterly to Marysville. On the way I see an Eucalyptus globulus tree fifty feet high, old tree, killed completely by the great frost of December, 1932.

No. 16,751.

near Williams in an irrigation canal.
See * p. 19.

Marysville, July 29, 1934

east of Marysville about three miles I stop and Detour in a springy spot by the roadside.

No. 16,752. Verbena

Full 6 ft. h., mostly 2 to 5 feet high. I saw it later in the foothills towards Timberlake, forming thickets 5 to 7 ft. high, apparently very bushy.
— *Hypericum perforatum*. Marysville.

No. 16,753. *Erythraea* (Centaurium)No. 16,754. *Epilobium*

Becoming 3 to 5 feet high.

No. 16,755. *Polygonum pericaria* L.No. 16,756. *Lycopus americanus* Nutt.No. 16,757. *Centaurium muhlenbergii*,
no. = *C. floribundum* Rob.No. 16,758. *Juncus bonariensis* L.No. 16,759. *Verbena hastata* L.
3 to 6 ft. high.

— Cont. from p. 19 X. Normally these plains are barren of trees, utterly barren primitively.

I go on east from the valley floor (see p. 23 at top), enter the foothills and pull out of the road a little to the shade of a tree and rest. As I rest an old-timer comes along, sits down and begins talk. Soon I realize that I am in the old mining town of Timbuctoo. The old Western Union Telegraph Office, Wells Fargo Office, Lums Co., and general merchandise store building* with a brick front and iron doors still stands and has been repaired as the beginnings of a local museum. Down the hill, out of sight, is graveyard Point where a large number of miners died suddenly of scurvy in 1849. But there was no need, said my informant, there was plenty of green stuff in the country, "water cress, dockage, wild oats and such" which would ward off death - but they were afraid the native plants were poisonous.

The old-timer was plainly pre-
* See p. 36.

July 29, 1934.

judiced against the Chinese and ^{and} one a month was killed by the flume watchman for robbing the sluices of gold in the night time; and if he did not kill his quota he would herd one into the cut and kill him!

He knows the Carpenter family, once resident at Smartsville one mile above here. The elder Carpenter went to rake hay for a man named Poole. He fell off the rake in front, was caught and carried along until the rake filled with hay, when it automatically dumped the hay and Carpenter with it. The horses ran away down a hill and smashed the rake completely. Carpenter went to Poole and spoke:

"O, Mister Poole!

You big damn fool!

Your rake is smashed to bits,-

Unrepairable!!"

Carpenter then walked off home.

Carpenter's two sons are now physicians in New York City.

I give the old-timer my name and address on a piece of paper and ask his name as I move to depart. He replies with evident pride: "Smith". I smile within-sides, but refrain from asking more.

I drive on towards Grass Valley. In about five miles I stop ^{* see p. 27} and collect: (between Smartsville and Penn Valley):

✓ No. 16,760. *Cyperus*

✓ No. 16,761. *Mentha spicata* L.

✓ No. 16,762. *Juncus acuminatus* Michx.
(det. P. Rubzoff, Jan. 1973)

✓ No. 16,763. *Daucus*

✓ No. 16,764. *Boissieria densiflora*
(Hindl.) S. Wats.

— Cont. from p. 16 near bottom. About opposite this station I see across the gully a very robust *Pinus eschireana* with a large load of large cones in its top. It is not an old tree.

— From the stop, see p. 26, *, I ¹⁹³⁴ continue onward to Penn Valley. It is a most attractive valley with very old ranches and very remarkable for the beauty and size of its Blue Oaks. Blue oaks are not merely Blue Oaks (*Quercus douglasii*). They differ a great deal. There in Penn Valley are well-developed and exhibit an unusual charm in their architecture.

— Between Smartsville and Nevada City, the grassy opens in the woodlands are often filled with great brownish colonies of *Hypericum perforatum*. A sad sight.

* Cont. from p. 14.

Trichostema lanceolatum Bth.

No. 16,744, collected on top of a hill across Cooks Creek from Ramsey, in *Eriodictyon californicum* formation, very dry.

Castilleja foliolosa H. & A.

No. 16,745 shows summer condition with leaves reduced to small fleshy scales. With 16,744.

Nevada City, July 29, 1934.

I reach Nevada City and look up my former student, Leland S. Smith, one of the foresters on the staff of the Tahoe Forest, with the ^{technical} Supervisor's office here. At his home, a comfortable cottage seated on a hill and giving an outlook over the town, I am most hospitably received by Smith and his wife. They have three children, a girl about ten and twin boys (about six).

Smith says: "The type map survey people did not collect plants for preservation at first, but they realize the importance of it now. Their field parties in the northern Sierras are instructed to collect everything (four sets). They are supplied with a great lot of drawers which if torn or lost are quickly replaced by more. Their presses are ~~poor~~. This note refers to the type map of woody plants of the state, Calif. Forest Experiment Station. Smith also said: 'E. J. Kraebel of the station wants seed of *Arctostaphylos nevadensis* and of *Ceanothus prostratus* for experiment. — — — has been sent out to collect these.' Ant. p. 34.

Nevada City, July 30, 1934 Nevada City, 29.

No. 16, 765. *Cytisus scoparius* Link.

Shrubs forming colonies of considerable extent about Nevada City. It is thoroughly naturalized in the oak or pine woodlands. I noted it on the road to the South Fork Yuba Bridge on my way to Davisville by way of Camptonville. It forms characteristically, very dense thickets 5 to 6 ft. high.

- *Ailanthus glandulosus*

Nevada City,
spontaneous.

No. 16, 766. *Asclepias eriocarpa* Bth.

Dry flats of open or wooded country. Nevada City, with next.

No. 16, 767. *Hemizonia fitchii* Gray.

This member of the Hemizonioid tribe is common on dry flat, with 16, 767, on road to North San Juan from Nevada City, about two miles out of Nevada City.

- *Verbascum thapsus*

Nevada City.

- *Cercis occidentalis* and *Arbutus menziesii* near bridge over South Fork Yuba River, nw. of Nevada City.

30 July, 1934.

No. 16,768. *Eriogonum nudum* var. *nudum*On granite sand flat betw.
South Fork Yuba River bridge and North
(near Shady Creek)
San Juan 3 to 5 1/4 ft. h. Stemsand branches green and glabrous.
Asclepias subpurascens = cordifolia with 16,768.No. 16,769. *Eriogonum nudum* var.
oblongifolium
with 16,768. This is the more

common of the two in the mixed
colony where they grow. This has
the stems and branches whitish-
gray with a close prachnioid-
tomentum. The flowers of the two
numbers, 16,768 and 16,769 are
quite alike in size, shape of parts,
and in a minute pubescence found
on the midrib of upper side of
perianth segments. Occasionally this
16,769 has terra-cotta anthers
instead of white, as in 16,768, but
this color difference does not cor-
respond with green and gray stems.
The bright terra-cotta anthers may

* cont. p. 36.

(Yuba Co.)

(Sierra Co.)

30 July, 1934.

to the young stage.

No. 16,770. *Lesqueria*

fls. lavender purple. Granite

sand flat with 16,768.

No. 16,771. *Lithocarpus densiflorus*

Woods Point; and on down

nearly to the North Fork Yuba River
bridge, this species is fairly frequent in
the forest, becoming 30 to 50
feet high. It is associated with
Madroño, Douglas Fir and Yellow Pine.

No. 16,772. *Boottia elata* Greene.

This saxifrigid forms colo-
nies on the nearly vertical cliffs
dripping with water, betw. Woods Pt.
and North Fork Yuba River bridge.
- cont. p. 32.

No. 16,773. *Eriophyllum*

Betw. Woods Pt. and North Fork
Yuba River bridge. 2/3 of spec. cut off.

no. 16,774. *Diplotaxis*Betw. Weeds Pt. and North Fork
Yuba River bridge.no. 16,775. *Monardella lanceolata*Bth. With dead stems near base
as if biennial, but probably
broken off early in season.

With 16,774.

- Cont. from p. 31, no. 16,772. Petals
white, oblanceolate, 5 stamens 5. Ovary
inferior. Seeds black. Stems and
petioles not "rusty-hairy" or only
slightly so.- *Hypericum perforatum* In the
Yellow Pine woods between Weeds
Point and North Fork Yuba River
bridge.- *Lithocarpus densiflora* (H. & A.)Rather frequent individuals betw. Weeds
Point and North Fork Yuba River bridge,
its associates same as *Madroño* assoc. at
listed middle p. 36. *Madroño* also
an associate.no. 16,776. *Eriogonum*- *Verbascum thapsus* Downieville.

no. 16,777.

Composite 4 to 5 ft. tall, colony
by roadway; about 6 mi. above
Downieville.no. 16,778. *Epilobium*Petals deeply lobed, so appear-
ing as if 8. Sierra City.no. 16,779. *Prunus subcordata* Bth.Rocky soil, near Sierra City, the
shrubs 2 to 3 (or 4) feet high, form-
ing rather dense colonies, the area
in sight on the steep slope at this
point perhaps 25 acres. This
area a little below Sierra City (a
mile or two). Cont. p. 37.no. 16,780. *Saponaria officinalis* L.This is a garden escape,
forming a single large plant on a
bank below the road near Sierra City.
Stems many, ascending from base. Petals

with a crest at base of limb, in the form of 2 teeth, one subulate, the other linear, short, blunt. In another petal = 2 very short slender teeth. This the better phrasing probably. Petals ^{latter} not ^{all} notched at apex, but the flowers "double".

-Cont. from bottom p. 28. I told Smith that I had emphasized to A. E. Wieslander, from the beginning of the survey, the importance of preserved specimens. When you have a good representative specimen on file, that represents with its field facts, a fixed point. It is definite, it is permanent, it is unchangeable. Now, this specimen can be determined and given a name, but the name may be subject to change. Increase of knowledge may show that it belongs in a related genus instead of the one to which it has been assigned. All binomials are expressions merely of relationships

but knowledge of relationships is increasing and changing - and it will ever be so.

I remarked to myself the enormous ways of the Forest Experiment Station: Krabel's order for seed and the man sent to collect it! How much will that seed cost? A lot certainly. Botanists secure seed in various ways for experiment - but ordinarily without any cost or very little. Seed is secured while on a general collecting trip usually or by using some resident Botanist who does the job for nothing. I found that Smith was much disturbed by these Federal "unemployment relief" men who, untrained, receive more pay than trained men in the Forest Service. Moreover, you can not use them on work jobs to any satisfactory end, because of the restrictions which govern their use.

From Sierra City I drove to Bassett, ^{thence} easterly two miles or so to Pioneer road sta., kept by a family named Simi. Two hundred yards east on the south side of the road is a Forest Service camp ground amongst the firs on the banks of the Shuba River (S. Fork). Here I made camp. It is a pleasant

-Cont. from p. 30.

North San Juan to Camptonville.

On mountain side above North San Juan on way to Camptonville, *Arbutus menziesii* is frequent; fairly large trees 45-50 feet high associated with Douglas fir, yellow pine, *Quercus kelloggii*. It is very common about Lang's Garage, which is the junction to Camptonville 1/4 mile distant. Next road sta is Dick's Retreat. Here I look up a hill slope openly wooded with yellow pine to see if filled with *Arbutus menziesii*. One mile more is a set of ranch signs for local roads; amongst them? Baum & Co. our Regent C. A. Baum, his flywood house. Add *beer macrophyllum* to list of *Arbutus* associates above.

-Cont. from p. 24 at *. Near this building stands a ponderosa tree 70 years old says the "old-timer". It was killed near to the ground by the great frost of Dec. 2-10, 1932. It has now a mass of green sprouts from the base.

July 30, 1934.

spot and the river is a lovely rapid mountain stream. Mrs. Simi cooks very good meals and I take my dinners at this road station.

-Cont. from p. 22. I took the curtains off the window and moved the bed close to the window.

A letter from my tenant, J. M. Brazelton on the old home place in Vaca Valley, dated July 28, says: "It is very hot here this last week. So hot that for three after noons we did not do a thing." He means that the laborers did not work in the fields.

-Cont. *Parnus subcordata*, no. 16, 779.

Shrubs very prominent with fruiting branches, these heavily laden in some cases, the fruits shining in the sun.

Pioneer road sta., 2 mi. e. of Bassett
road sta., North Fork Yuba River, 5600 ft.

No. 16,781. *Carex*

Moist bottom.

No. 16,782. *Senecio*

Range 6 to 8.

No. 16,783. *Elymus glaucus* Buckl.
(det. Beecher Crampton, 7/76)

This grass grows in moist
bottoms.

No. 16,784. *Phleum pratense* L.
(det. Beecher Crampton, 7/76)

This grass in moist bottoms.

No. 16,785. *Apocynum androsaemifolium* var. *pumilum* Gray. Corolla white, pink-tinged
in a part-color manner. Loose sandy soil.

No. 16,786. *Madia bolanderi* (Gray) Gray
Many erect stems from the

root-crown, the cluster loose. Moist
bottoms in rich soil

No. 16,787. *Glyceria elata* (Nash.) Hitchc.

This is a very remarkable
grass, the stems rather slender, 7 ft.
tall, nearly erect but only by virtue
of growing amongst bushes and re-

Sierra Co. August 2, 1934

slining.

No. 16,788. *Sidalcea oregana* Gray ssp.
spicata (Regel) Hitchc.

Stems several from the root-

crown. Corolla pink, larger than in the
next number (16,789). Basal leaves more
deeply cleft than in 16,789.

No. 16,789. *Sidalcea oregana* ssp. *spicata*

Corolla red or nearly crim-

son; basal leaves shallowly cleft. In the
preceding (16,788) the basal leaves are
cleft to middle. Moist bottom, rich soil.

No. 16,790. *Stachys* ^{*rigida* ssp.} *rupestris* Hal.

With 16,789. Corolla white, lavender-tinged.

No. 16,790a. *Carex*

No. 16,791. *Agrostis exarata* Trin.
(det. Beecher Crampton, 7/76)

This grass grew with 16,781.

No. 16,792. *Carex*

Moist bottom. Same as 16,781?

No. 16,793. *Carex*

Moist bottom.

- ✓ No. 16,794. *Madia glomerata* Hook.

About $\frac{1}{3}$ the heads in this
Madrioid plant bear a single ray.

Moist sandy flat.

- ✓ No. 16,795. *Epilobium* n

Moist sandy flat.

- ✓ No. 16,796. *Mimulus*

Cor. yellow, its upper
lobes turned backward sidewise. Stems
arising from matted rootstocks which
give rise to short erect leafy branches,
these so thick on the ground as to
make a sort of mat. Moist sandy
bottom.

- ✓ No. 16,797. *Polygonum* ^{*phytolaccifolium*} ~~*serotinum* All.~~

Stems spreading a little,
half-way between erect and prostrate.
Dry sandy slopes, in dry gullies.
Sheaths shortly and obscurely ciliate, if at
all. Calyx not dotted.

- ✓ No. 16,798. *Helloggia galioides* Torr.

dry woods

Allophyllum integrifolium (Brand) R. & V. Crane

- ✓ No. 16,799. *Gilia galioides* Greene

This polemonioid, with white

flowers, is one of the most common
plants on sandy flats.

- ✓ No. 16,800. *Phacelia griseophylla* (Brand)

One of the most common
species in sandy open flats or open
amongst brush. ^{↑ dry} ^{↑ dry}

- ✓ No. 16,801. *Gayophytum*

Petals very small. Buds
small, short, thick-obovoid, obscurely if at
all apiculate. Dry flats.

- ✓ No. 16,802. *Gayophytum*

Petals much larger
than in 16,801, white, fading pink. Buds
markedly apiculate.
↑ narrowly obovoid,

- ✓ No. 16, 803. *Trifolium hybridum* L.
Sandy flat.
- ✓ No. 16, 804. *Stachys* ^{*pycnantha*} *rigida* Nutt. var.
cymosa (Hel.). Moist shady flat.
- ✓ No. 16, 805. *Agrostis alba* L.
(Det. Beecher Crayton, 7/76)
This grass grew in a moist
bottom.
- ✓ No. 16, 806. *Circaea* ^{*alpina* L. var.} *pacifica* (Dsch.
& Mac) Jones Deep shade of moist flat.
- ✓ No. 16, 807. *Carex*
Open bog.
- ✓ No. 16, 808. *Carex*
Open bog.
- ✓ No. 16, 809. *Eriophorum gracile*
Koch Open bog
- ✓ No. 16, 810. *Aster Andersonii* Gray
Rays lavender-purple.
disk yellow. Open bog.
- ✓ No. 16, 811. *Lophelia glutinosa* (Michx.) Pres.
ssp. occidentalis (Wats.) Ch. Hitchcock
This herbaceous plant grows
in an open bog.

5600 ft.

- ✓ No. 16, 812. *Aster Andersonii* Gray
This asteroid plant with
lavender rays grows in open bogs.
- No. 16, 813. *Juncus mertensianus* Bong.
ssp. gracilis (Engelm.) Hermann Open bog.
(var. *pumilum* Gray)
- ✓ - *Apocynum androsaemifolium*
This has spreading branches, the leaves
with their upper sides facing the sky, so
that the effect of a branchlet is
if it were "pinnate". Not so in *A.*
canabinum - the leaves on the erect
stems rather closely ascending in oppo-
site pairs.
- ✓ - *Pterospora andromeda* In fl.
- ✓ - *Polygonum* no. 16, 797. Stems many
from a large fleshy thick root, simple
(forming a loose stool
or subsimple, suberect or ascending),
ft. high, as broad or broader.

✓ No. 16, 814. *Glyceria elata* (Nath.) Hitchc.
(det. B. Crampton, 7/76)
Moist bottom. This is a beautiful grass
↑ see p. 45.

— beautiful in this sense: The stems
are very full, 5½ ft. high, and very
slender, bearing at summit a
drooping airy panicle. The ^{few} stems form
a loose stool and rise vase-like.

There's no tuft of leaves at base — per-
haps one short erect leafy sterile shoot to each
culm.

Collecting Tools for Root Work.

For many years I have carried in the field
a particular type of pick, the Jenson Pick, for dig-
ging. Without such a tool one cannot do good
work in the field, because he will tend to neglect
study of the all-important underground organs.
Just now I have been collecting on a fir-covered
slope on the south bank of the Yuba. My pick
enabled me to uncover the root system of a
Stellaria (no. 16, 826) with thick tuberos-
rootstocks. This is, I think, a described species,
S., but the stolonies referred to
not described in the Manual or properly descri-
bed. Constantly, I am discovering important
features of underground organs — but collectors
still neglect these structures. Perhaps no student
in my laboratories nowadays has a
pick — either Forest Botany or Advanced
laboratory, except on old-timers like V. Duran or
a special case as Jos. Ewan. At one time all
of them had a pick, — regularly.

✓ No. 16, 815.

This fern forms a heavy
stool with numerous spreading fronds
— an elegant plant, a shame to mar
it by removing 2 or 3 fronds.

— The culms of the grass no. 16, 814 have
a purple zone at each node.

✓ No. 16, 816. *Cornus californica* C. A. Mey.

The infl. is minutely and thinly pubescent.
See next no. (16, 817) as to its occurrence.

✓ No. 16, 817. *Alnus tenuifolia* Nutt. As I

stand on a Red Fir log which bridges
the North Yuba and look up stream,
the banks are thickly covered with
a heavy thicket of the Mountain
Alder, mixed a bit with the Creek
Dogwood (16, 816). These two are the dom-
inants and make the heavy screen
along the ^{pushing} water. The leaves are a
little folded upwards from the midrib
— that is troughed! This is a conspicuous
feature as one observes the ^{living} shrubs! The
leaves are thickish, anything but *tenuifolia*.

No. 16, 818. *Ligusticum grayi* C. R.
shady woods.

No. 16, 819. *Solidago*
cañon bottom.

No. 16, 820. *Agrostis exarata* Trin.
(det. Beecher Crampton, 7/76)

This grass grew in rather
heavy shade; cañon bottom, moist soil.

No. 16, 821. *Cinna latifolia* (Trev.) Griseb.
(det. Beecher Crampton, 7/76)

This grass grew in the
woods, north semi-moist slope.

No. 16, 822. *Castilleja miniata* Dougl.
with weed.

No. 16, 823. *Epilobium*
Cor. white; petals cleft at

apex. Stems tall, slender, forming a
cluster. Moist cañon bottom. At least
one winter bud is being formed at the
base of each stem.

No. 16, 824. *Osmorhiza*
shady woods.

No. 16, 825. *Chrysopsis breweri* Gray.
Herbage nearly glabrous, that
is only scantily pubescent, shiny or

wetly so. The general effect is as if
glabrous!! The pubescence is weak and
obscure. "Corymbosely branched above", the bran-
ches leafy-bracteate. Achenes yellow with ascend-
ing hairs, not "strigose-pubescent". Leaves oblong-
lanceolate, some oblong or linear. Cont. below.

No. 16, 826. *Stellaria jamesiana* Torr.

Internodes at intervals

strongly tuberos-thickened. cf. p. 44.

No. 16, 827. *Bromus ciliatus* L.
(det. Beecher Crampton, 7/76)

This grew far into shade in the
shady fir woods n. slope across the Yuba
River from camp.

No. 16, 828. *Castilleja*
with 16, 827.

- Cont. from top of page, (No. 16, 825). Heads
in living state cylindric or nearly, not
truly campanulate. Nor can the involucre be
said to be "campanulate"; it is short-
cylindric rather. Heads "broadly turbinate",
probably due to pressing.

- No. 16, 829. *Pyrola picta* Sm.
Fire woods. Leaves: veins bordered
or speckled with white.
- No. 16, 830. *Chimaphila umbellata* Nutt.
Fire woods.
- No. 16, 831. *Arabis*
dry pine flats
- No. 16, 832. *Angelica breweri* Gray. Stems
root crown.
1 or few from Individuals scattered, some-
what infrequent. Open woods.
- No. 16, 833. *Hieracium albithorum*
dry pine flats.
- No. 16, 834. *Poa bolanderi* Vasey
(det. Beecher Crampton, 7/76)
Culms at first horizontal,
later when coming into anthesis
becoming erect.
- No. 16, 835. *Melica aristata* Thurb. ex Boland.
(det. Beecher Crampton, 7/76)
This grass grows in the dry
flats - pine flats.
- No. 16, 836. *Piperis roezlii* Regel.
Common in the cañon bottom.

- No. 16, 837. *Arnica*
dry rocky soil of pine flats.*
- No. 16, 838. *Ligusticum grayi* C. & K.
Wooded cañon bottom.
- No. 16, 839. *Carex*
Meadow bog.
- No. 16, 840. *Camassia leichtlinii* (Baker)
Wats.
Meadow bog.
- No. 16, 841. *Eulophus*
wet meadow.
- No. 16, 842. *Deschampsia caespitosa* (L.)
Beauv.
(det. Beecher Crampton, 7/76)
This grass grew in the wet
meadow, or formerly wet meadow, its
basal tuft of leaves very dark green,
very narrow, and somewhat involute
from the sides; thus a little *Juncus*-
like.
- No. 16, 843. *Pedicularis groenlandica*
Ratz.
Wet or boggy mdw.
- No. 16, 844. *Carex*
Boggy mdw.
- * Heads cylindric, somewhat subulate in
the dried specimen by pressure.

Pioneer road sta., 2 mi. e. of Bassett road
sta., North Fork Guba River, 5600 ft.

- no. 16,845. *Vaccinium occidentale* Gray.
Colonizing the bog opp.

Pioneer sta., the dominant over three
or four across. Bushes 1½ to 2½ ft.
high.

The trees at this point: *Pinus emborta*
var. murrayana, *Abies magnifica*
Pinus monticola, *Populus trem-*
uloides

- *Acer glabrum* In woods along
stream.
- *Epilobium* Fireweed.
- *Sphenosciadium capitellatum*

Sierra Co. Aug. 8, 1934.

Still slope (south slope) opp. camp.

- no. 16,846. *Rhamnus rubra* Greene.

Good soil, rocky slope.

- no. 16,847. *Castanopsis semperivirens* (Kell.)
Dudl.

Good soil, rocky slope.

- no. 16,848. *Garrya*

Good soil, rocky slope.

- no. 16,849. *Castilleja pinetorum* var.

Stems several from the root-
crown, 2½ to 3 ft. long, much-branched,
forming a spreading plant 4 ft.
wide. Stems not erect, but ascending
against bushes, spreading down hill.

This plant is in good soil but
more or less rocky slope, ~~exophytic~~
(chaparral) exposure. It is in contrast
to no. 16,828 of the moist north
shaded slope, the stems of 16,828 being
erect, slender, ^{simple,} 1 or 2 in a place, the
raceme broad, with conspicuously
spreading flowers. The racemes in
16,849 are narrower and flo.

shorter and less conspicuous. Bracts
in both cases scarlet.

No. 16, 850. *Bromus orcuttianus* Vasey
(det. Beecher Crampton, 7/76)

This grass has 2, 3 or 4
tall stems arising from a basal
leafy stool. Good soil, rocky
slope.

No. 16, 851. * *Erigeron inornatus* Gray var.
inornatus with 16, 850.

No. 16, 852. *Arctostaphylos patula*
Greene. ** with 16, 850.

No. 16, 853. *Amelanchier* ^{*pumila* Nutt.} ~~*laevis*~~

No. 16, 854. *Lonicera*
Berry twin, pale salmon color.

* The individual increases the area occu-
pied by means of runners, or perhaps
latter stolons which branch from the root-
crown or bases of depressed stems.
Cont. at * p. 53

* Flowering racemes, in bud, have al-
ready formed for next season, 1935.

- On the ^{North} slope opposite my camp is a
of the hill

chaparral formation,

made up as follows:

Arctostaphylos patula Greene.

Ceanothus cordulatus Mill.

Cartanopsis semperivirens Lf.

Garrya (no. 16, 848)

Prunus emarginata (Hook.), the
usual small-leaved bush of dry
slopes.

Amelanchier semifolia

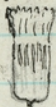
The above formation extends from the
top of the hill down nearly to the bottom,
where there is a band of shrubs in
the wetter area, - no *Arctostaphylos pat-*
ula, but mainly *Ceanothus cordulatus*
and *Prunus emarginata*.

- Cont from p. 52 at *. I was much
struck by the shape of the heads in the
pressed spec., broadly turbinate or sub-obtri-
cular. I went back to the collection spot
on the hillslope. The living heads have
cylindric involucre, short and thick but cy-
lindric, with the flowers spreading just a
trifle; see sketch on next page:

54

Pioneer road sta., 2 mi. e. of Bassett,
Aug. 5, 1934.- Cont. from bottom p. 53.
no. 16, 851.

head =

← slightly over $\times 1\frac{1}{2}$.

This example leads me to wonder how far from the real shape are the descriptions of heads of various species of Compositae in the books. Perhaps they are, in the main, descriptions of dried specimens and not living plants.

- I break camp in the pleasant woods on the bank of the howling Yuba River, and motor up grade to Yuba Pass, where I stop and collect nos. 16, 855 to 16, 866. This is a beautiful meadow, here in the pass.

Yuba Pass, Aug. 6, 1934, 6600 ft.
Sierra Co.

55

at the summit, that is on the divide between the headwaters of the North Fork Yuba River and Sierra Valley, there is a large meadow. Here I collect:
No. 16, 855. *Cryptantha torreyana* Greene.

No. 16, 856. *Stellaria longipes* Goldie.
In a lushly "grassy"

bottom spot.

No. 16, 857. *Carex*

with 16, 856.

No. 16, 858. *Carex*

with 16, 856.

No. 16, 859. *Sphenosciadium capi-*
tellatum Gray. *c. howellii*

No. 16, 860. *Caltha leptosepala*

Marshy spot.

No. 16, 861. *Polygonum*

Sandy slope.

No. 16, 862. *Aster*

Rays lavender.

56

Yuba Pass, Aug. 6, 1934.

Sierra Co., 6600 ft.

No. 16, 863. *Poa bolanderi* Vasey
(det. B. Crampton, 7/76) This grass grew in the
"grassy" bottom of the meadow.

No. 16, 864. *Carex*

moist bottom.

No. 16, 865. *Bromus carinatus* Hook. & Arn.
(det. Beecher Crampton, 7/76)

This grass grows in a
moist flat.

No. 16, 866. *Scirpus*

This sedge grows on
a moist bank.

No. 16, 867. *Lupinus*

Forming "bushes"

2½ to 3 ft. h. on a sandy bank
about 4 miles below Yuba Pass on the
east side.

No. 1

- I go on from the Yuba Pass (p. 54)
and motor down the rather abrupt
east slope towards Sierra Valley
which shows up as a great
yellow plain below, flanked (cont. p. 57)

Cold Creek near Sierraville

57

Aug. 7, 1934

Sierra Co.

No. 16, 868. *Senecio*

No. 16, 869. *Agropyron trachycaulum* (Link.)
(det. B. Crampton, 7/76) ^{Malte} This grass grew on edge

of damp meadow in sandy-loam soil.

No. 16, 870. *Deschampsia caespitosa* (L.)
(det. Beecher Crampton, 7/76) ^{Beauv.} Grass, with 16, 869.

No. 16, 871. *Cirsium*

Sandy-loam flat

No. 16, 872. *Habnaria dilatata*
var. *leucostachys* Marsh.

- Cont. from bottom p. 56. eastward by a
shadowy mountain range ^{lying dusky} in the
late afternoon light. I reach Sattley,
a hamlet on the valley floor and
go on to Sierraville. The hotel seems so
dirty and coarse, that I go out to
Campbell's Hot Springs and spend the
night. I find it worse, the hotel
there, than Sierraville could have been!
Next morning I motor through the
woods by a woods road and rejoin
the Truckee road from Sierraville.

no. 16, 873. *Artemisia tridentata*

No. 16, 874. *Madia glomerata* Hook.

Corollae and rays extremely small in this radioid plant. Sandy flat.

No. 16, 875. *Aster*

Dry sandy flat. Rays dark lavender.

No. 16, 876. *Elocharis macrostachya*

This sedge in a now dry

but once moist sandy flat.

No. 16, 877. (*Haploglossus*) *Bloomeri*

Gray approaching var. *angustata* Gray

No. 16, 877a. *Agoseris cf. glauca* Compositae.

No. 16, 878. *Sambucus*

Sierra Co. 4 mi. E. from Independence Lake.

- As I climb the hill S. from Sierraville I run into brush fields that appear never to have been forested. They have been. A little further along I see Jeffrey Pine reproduction a little amongst the *Ceanothus velutinus* brush; a little further dead fire-killed woods of Jeffrey Pine and Red Fir. When this dead timber falls the brush field will look like (Cont. p. 60).

Aug. 7, 1934

Nevada Co.

No. 16, 879. *Eriogonum spergulinum* var. *reddingianum*

Sandy flat, about

4 mi. SW. of Truckee.

Near Square Creek, along Truckee River.
Placer Co.

No. 16, 880. *Carex*

Moist spot. Banks of Truckee River

No. 16, 881. *Carex*

In about 15 inches of water, therefore aquatic in that sense.

No. 16, 882. *Glyceria grandis* S. Wats.

(Det. Beecher Crampton, 7/16) This grass forms a most beautiful colony 3 to 4 feet high standing in 15 to 24 inches of water on the margins of the Truckee River. The panicles are erect, though the branches may be drooping at tip.

Drive from Snow Creek (p. 59) to Fallen Leaf where I stopped with the Peirces over night.

The next morning Prof. Geo. J. Peirce drove with me down the Placerville road to Berkeley.

- Cont. from bottom p. 58. the brush fields first mentioned - ^{they look} as if never timbered.

A little further there is a forested slope, Jeffrey Pine and Red Fir, half-open stand with *Ceanothus velutinus* B. & G. colonies in between.

No. 16,883. *Lupinus*
Meadow flat, dry, at Strawberry sta.

No. 16,884. *Malacothrix floccifera*
with 16,883.

No. 16,885. *Gayophytum*
with 16,883.

Allophyllum violaceum (Heller) H. & V. Greene
No. 16,886. *Gilia gilivides* Greene.
with 16,883.

No. 16,887. *Polygonum*
(Eldorado Silver Fork.

No. 16,888. *Eriogonum nudum*
var. *nudum* Perianth white. Silver Fork.

No. 16,889. *Eriogonum nudum* var.
nudum Perianth yellow. Silver Fork.

These two last numbers represent white and yellow-flowered individuals in a colony on the hillside near Silver Fork. Most of the individuals are much larger and some many-stemmed, forming striking clusters. I am

unable to note any differences between the yellow and white forms save color. Peirce suggested a difference in the leaves - but this suggestion was based on just two individuals. Taking the whole colony I think no constant difference could be found.

No. 16,890. *Eriogonum roseum*
With 16,888.

No. 16,891. *Chenopodium*
With 16,888

No. 16,892. *Lessingia*
Canino.

- Reached Berkeley about 6⁰⁰ pm.
Peirce stopped all night with us at 11 Mosswood Road.
↑ my home,

- Took Professor A.S. Foster, the new man in our Dept., to Mt. Diablo on a trip. On the way I showed him the ecological show place of our hills near Berkeley, Moraga Ridge, the fire-type pine, *Pinus torreyana* and the associated chaparral shrubs. *Ceanothus velutinus* var. *minor* was in splendid fruit - heavily loaded bushes - the berries reddish-tinged. A detailed account of the day on Mt. Diablo is given in my private journal, Men and Mammals, vol. 7, p. 145.

Oct. 1, 1934.

The snowfall on Howell Mt. in the winter of 1931-1932 was about 11 inches and greater than had been known in sixteen years acc. to A. J. Wearner, elder of the Adventist Church, who has been stationed here a long time. He says the Blue Oak (*Quercus douglasii*) suffered severely, large limbs being broken off under the weight of the snow, and even the whole tree going down occasionally. The Blue Oak felt, being unprepared for snow, is thus much changed by an exceptional snow fall.

Wearner also says that an area cleared completely of chaparral and trees, - for fuel use - , ^{developed} a spring though there had been no spring there before.

Everywhere here in this range one gets evidence that woodlands were once more extensive than now. The west slope of the Adam and Eve Ridge has been fire-barricaded for a long time. It is now recovering. Everywhere oaks are beginning to lift above the general level of the chaparral. Most noticeable are the *Umbellularia californica* bushes, relicts in the chaparral, which are now beginning to lift quite a bit. I cannot conceive that this species would ever start, would ever establish itself on such arid slopes, such a rocky devastated terrain. It must be, as it now exists here, a relict of happier conditions, of a fuller thrifty woodland in times past.

Oct. 16, 1934

- No. 16, 893. *Eriogonum*
In Vineyard below From Corner.
- No. 16, 894. *Pityrogramma triangularis* (Kaulf.)
maxon var. *triangularis*
This fern grew about
rocks, lower slope Adam-and-Eve
Ridge.
- No. 16, 895. *Festuca californica* Vasey
[det. Beecher-Crampton, 7-6-73]
This grass grows in
woods on a steep north rocky
slope. Adam-and-Eve Ridge.
- No. 16, 896. *Galeanthus occidentalis*
H. & A.
By "cave", Adam & Eve Ridge
- No. 16, 897. *Pellaea mucronata* (D.C. Eaton)
D.C. Eaton var. *mucronata*
This fern grows under the
edge of rocks on dry arid slope,
Adam & Eve ridge.
- No. 16, 898. *Linum micranthum*
Gray & Howell dry rocky cañon slope.
Betw. Sanitarium and From Corner.
- *Xerophyllum tenax*. See p. 72.
- Collections no. 16, 924-25 belong here.
See p. 79.

No. 16,899. *Quercus Kelloggii* Newb.
Sanitarium. Fruits only.

No. 16,900. *Carex*

Forming very heavy
stools 1 to 2 feet broad and 2 to
3 feet high in the flood bed
of Napa River. St. Helena.

No. 16,901. *Cyperus*

Flood bed, Napa River.

St. Helena.

No. 16,902. *Lotus scoparius* Steud.

Base of rocky hill, St. Helena.

No. 16,903. *Heterotheca grandiflora* A.

Nutts Flats by Napa River,

St. Helena.

No. 16,904. *Melissa officinalis* L.

This labiate grew in a
shady spot in the river bottom,
Napa River. St. Helena.

No. 16,905. *Brickellia californica*

River bottom, St. Helena.

- All of the nos. 16,900 to 16,905 were
collected ^{at or} near the bridge over Napa
River between St. Helena and Sani-
tarium.

No. 16,906. *Quercus agrifolia* Neé
St. Helena, at Sanitarium. Nuts
black. Oct. 11.

- Driving south in Napa Valley, one
finds, a quarter of a mile north of
Oakville, a broken line of ^{Lombardy} poplars,
and eucalypts on the left side
of the road with a wide open
field stretching away to a
screening border of splendid Valley
Oak and tall Red willow and
Yellow willow along the Napa
River. The oaks lift grandly
above the free level, and the
eye is naturally carried on
to the great sweep of chaparral
clothing the high mountain

rising eastward to the left of Pector Cañon, with broad patches of brick-red clearing warm against the dark purple of the spreading slopes.

Yet, again, south of Yountville, four or five miles, a break in the orchard trees shows a broad field with Valley oak scattered over it, the charm of which is exalted by the height of cut. George's Valley big to the southward.

For pure delights and serene contentments, the floor of Napa Valley and its foothills impinging ruggedly on the plain, have for me great store of happy memories.

— Calycadenia

— Eriogonum

Both on Adam and Eve ridge, Howell Mt. See numbers on p. 79.

No. 16, 907. *Cytisus monspessulanus* L.
Running wild in many places along roadsides; seedlings numerous.

No. 16, 908. *Canotilus papillosus*

T. & G. Very frequent in the woods.

Erect slender shrub 5 to 12 ft. h.

No. 16, 909. *Baccharis douglasii* DC.

Wet flats in bottom of cañon.

No. 16, 910. *Populus trichocarpa* T. & G.

Along San Lorenzo River at Ben Lomond. A fine tree — truly imposing individual — was noted at Felton, 60 ft. h., the crown nearly as broad.

No. 16, 911. *Solanum nigrum* L.

Fl. & fr. branches; also erect seedling.

No. 16, 912. *Ericameria* ^{Haplopappus} ~~ericoides~~ (Less.) H. & A. Erect fastigiate branched

bushes 4 to 5 feet high, very

thrifty and good-looking. Appear to be growing on ancient sand dunes, now stranded inland!!

No. 16, 913. *Quercus agrifolia* ^{wislizenii, all TUCKER} ~~Wes.~~ 1965

Leaves like those of *Q. wislizenii*! Main branches erect!! giving the trees a characteristic appearance!! Many of them all through the region.

No. 16, 914. (*Ericameria*) *Haplopappus ericoides* (Less.) H. & A. Scraggly type of no. 16, 912

No. 16, 915. *Arctostaphylos*

In opens, woods of

Quercus agrifolia. Associated with no. 16, 914.

No. 16, 916. *Quercus agrifolia* ~~Wes.~~

Ben Lomond.

- *Pinus ponderosa* Dougl. Occasional trees scattered over the hills

se. of Ben Lomond village.

- All about this region are old sand dunes.

Excavations show dunes 100 feet deep. The sand appears quite like sea-sand.

- Cont. p. 72 -

Oct. 27, 1934.

No. 16, 916. *Juncus*
Wet mountain side, 3 mi.
n. of Watermans Gap, Santa Cruz Mts.

No. 16, 917. *Equisetum telmateia* Ehrh.
With 16, 916

No. 16, 918. *Erigeron Conyza densa* (L.) Cronq.
With 16, 916.

No. 16, 919. *Potentilla glandulosa* Lind.
With 16, 916.

No. 16, 920. *Madia elegans* ssp.
densifolia (Greene) Kech. Saratoga.

Santa Clara Co.

Felton, Santa Cruz Co.

No. 16, 921. *Quercus agrifolia* ^{wislizenii A. DC.} ~~Wes.~~
Same as 16, 913, the acorns
a little larger, the nuts thicker.

No. 16, 922. *Arbutus menziesii* ^{Barak.}
Valley View School, below Glenwood,
Santa Cruz Mts.

- No. 16, 923. *Xerophyllum tenax*
Nutt. Adam & Eve Ridge, Howell Mt.,
near Four Corners. Oct. 18, 1934.
This note belongs, calendar-wise,
on page 65, ante.

— Ben Lomond, Oct. 27, 1934.

- Cont. from p. 64. -

On these dunes are still
to be found sea beach plants:

- *Ericameria*, no. 16, 914.
- *Lupinus* bushes, probably arbores.
- There were other things which I
failed to put down at the time
in the field.

- Cont. from bottom p. 64.

- It would seem to me that
long-continued fire-ravage has
caused this ridge to go on into
choparral. That fire is less
common in recent years, and if
kept out, the woodland will come
back.

- *Arctostaphylos manzanita*, good-
sized shrubs on trail to Angwin,
^{Howell Mt.,}
cut-off, just above Sanitarium:
one shrub, branches 6 to 7 in. in
diam. with bark all dead except
 $\frac{1}{2}$ of it, or even only $\frac{1}{4}$ of it.
Trunk at base 22 in. diameter,
the circumference with bark $\frac{1}{3}$
living. These dead zones of bark
run up the branches but not
out onto the small twigs.

- Jas. Tracy of Eureka called this morning. He said: *Trifolium humb.* I have found on Grasse Mt. It is extremely rare. It looks a little, before flowering, like *Trifolium repens*, and grows in much the same kind of habitat. I have made a list of Carl Marshall's localities (and dates) in Humboldt Co. I think I have all of them or nearly. I have been unable to find any plant in Humboldt Co. that answers to *Troximon marshallii* Greene. He said that he got it either about Bear River region or in southern Humboldt. I have looked in both places but have found nothing answering to the description. Marshall discovered *Mitella ovalis* Greene on Supply Creek, Hupa. His

material enabled Greene to see that he had a new species before him, but he ^(Greene) indicated a plant of Bolander from Mendocino Co. as the type. Carl Marshall sold his herbarium to the Eureka High School on Loring California. I have catalogued it, taking down the localities and dates in my list. This herbarium has suffered a good deal, under the circumstances, in all these years, - and it is better to say that I listed what was left of it. Speaking of altitudinal ranges, I collected a ^{strange} looking *Agrostis*, determined by Hitchcock as *Agrostis Rossii*, arctic-alpine. Well my station on South Fork Mountain is not arctic-alpine and so I wondered about it. In these dry years

Berkeley, Oct. 30, 1934

we have no snow on South Fork Mt. in June, but in 1933 there was heavy snow banks remaining in June and we had continually to get around them. My *Agrostis* was found below a snowbank in a cirque, the melting water from which seeped down to the roots of this annual *Agrostis*. So that after all, its habitat in connection with a snow bank gave a connection with the arctic-alpine in a way.

Marshall's new species were:

Mitella diversifolia Greene.

Ribes marshallii Greene.

Troximon marshallii Greene.

Saxifraga marshallii Greene.

[All this is more fully and accurately stated in J. P. Tracy's letter of Jan. 14, 1935]

For an incident of Tracy's call see my "Men and Manners", vol. 8, p. 36

Berkeley, Oct. 30, 1934.

Tracy (see previous page) amongst many other things remarked that *Epilobium exaltatum* Drew (which Drew collected in Humboldt Co. and therefore has an especial interest for Tracy) seemed to him to be, not an ally of *Epilobium californicum* as I have it in the Manual (I make it var. *exaltatum*) but an ally of *Epilobium brevistylum*. So I turned to the Flora of California manuscript to make note of Tracy's view and found that I had stricken out Drew's species and my varietal emendation from notation under *Epilobium californicum*. When Tracy saw this, in looking over the pages together, I said to him: "Well, I wonder what I did with it." It had of course been placed elsewhere

and so I turned over the page until *Epilobium brevistylum* was reached and there it was for Tracy to see: put down as a var. of that species. That was curious that the two of us should independently have had essentially the same idea. Tracy, if my memorandum is correct, got his specimen of *Epilobium exaltatum* on Grouse Mt. (his no. 12,835).

- Alfred Frost, naturalist in Sequoia National Park, called today. I took him to lunch. He said: The water situation in the Park is a problem. Two ranger stations have been discontinued - because the water supply has failed; a thing never known before at those stations. Many streams went so low in the park that

a crew of Civilian Conservation Corps men were put to work to take them out of the pools and transfer them to major streams. 30,000 small fish were rescued. A good snow supply this winter is much to be desired. Otherwise even the *Sequoia gigantea* is likely to suffer. Browning of *Sequoia gigantea* individuals was noticeable this dry fall, more than usual. - Dec. 28, 1934.

This note of Howell Mt.
belongs to Adam and Eve Ridge, Dec. 16, 1934.
on p. 65 ante, as to colanders.

No. 16,924. *Eriogonum*

no. 16,925 *Colycadenia*

These two, above the "cave" on the lower slopes of Adam & Eve ridge.

Mr. A. E. Wieslander just in to call re his U. S. Forest Service map work: I had a hard time convincing Washington to the idea of a vegetation map. Maps there always been made in the Forest Service with reference to some particular product or special kind of timber. But gradually I have had my way and Washington has finally accepted the vegetation map idea. They see now that it is so vastly more useful for every purpose, as well as being useful for such economic purposes as we had in mind in the beginning. The trend that we are following had its beginning back in my undergraduate days when I worked under you

Jan. 9, 1935

in the "Survey of the Muir Woods" on Mt. Tamalpais."

The above is highly interesting. When I set ^{↑ P. 13} Herbert and ^{↑ P. 2} Wieslander to work in "Muir Woods", it was not for any economic purpose. It was to make a scientific map, for scientific purposes, of all the woody plants regardless - a thorough appraisal of everything there with close botanical accuracy. Yet this, that such a map is far more valuable ^{↑ in the long run as an economic asset} than a map made merely for a special economic purpose. And Wieslander found it so. And all these years he has been trying to carry out the same idea in this vast mapping project of the United States Forest Service.

This is a sound illustration of the principle that pure science, real research, furnishes the broadest foundations for real progress in economic forestry. There is danger that the Forest Service in its attempts to be practical will come to disregard pure research or the results of pure research. Here it is in a nutshell. Two bright and highly promising students are put to work on a mapping job on Mt. Tamalpais. If any one had asked the practical use of such work I should have been unphased as to a fit answer, save to say that it was good theoretical training. And lo, and behold. That work really forms the

Jan. 9, 1935.

initial basis for the Forest Service Type Map of California - the most extensive and important and detailed vegetation map ever attempted anywhere on the earth's surface. - Jan. 9, 1935.

- Re. *Arctostaphylos*, H.S. Wieslander says: *Arctostaphylos parryana* is killed outright by fire, but it spreads by layering, so that as it dies off in center, it increases centrifugally. I have photographs of such circles. It is abundant in Mt. Pinos. It might easily be mistaken for *A. patula* which does not occur on Mt. Pinos or in that region. *A. parryana* is associated with upper Pinon Belt and lower Jeffreyi Belt.

A. pungens is extremely abun-

dant in San Diego Co.

Crown-sprouting is an important field observation with us. We could not possibly get along without it. It means a great deal - sprouting or not sprouting.

A. parryana we have rarely seen in the San Gabriels.

-Cont. from middle p. 25. This morning came in Dr. Allan Carpenter of New York City, physician, and I read him the anecdote related on p. 25. He said at once: ^{Of the rats} "That was not my father! It was myself when a young fellow. I remember the incident well! My father died in 1874!"

- Dr. George Plumer Burns, Prof. of Botany in the University of Vermont, called this morning. He said: Asa Gray was at the Univ. of Michigan. They gave him a year's leave to visit the European Botanical Laboratories before establishing their laboratory at Michigan. Gray went to Europe, stayed a year, on his way back stopped at Harvard. Harvard offered him a place and he accepted, barely waving a goodbye to Michigan.

C. G. Bringle, refusing to fight in the Civil War, was tortured ^{↑ a Quaker}, but finally sent home by President Lincoln. It so happened in consequence that he was never mustered out - consequently he was actually "drawing pay" as a soldier, though he did not know it. Many many years later an agent of the War Department looked

him up and wanted him to sign a paper and receive his pay and be mustered out. Pringle indignantly refused! To prostitute his idealism, his conviction against war, was something that he could not do. Such was the upright Pringle!

He had a pass signed by Diaz which enabled him to travel on any railway in Mexico. Once he flagged a train, desiring to get on. Not knowing the cause of the flagging, the engine-man stopped the train, but refused to let Pringle board it. Pringle insisted. This altercation caused Diaz, who was on the train, to investigate the delay. Seeing Pringle and his pass, he invited him on board. It was Diaz's own special train!!

Burns went with the Dean of his college to visit the Boyce Thompson

Jan. 25, 1935

Institute on the Hudson River. Crocker, the Director was not there, but the first Director showed them through the costly laboratories costing such vast sums of money. At the end the Dean, with a sharp nasal drawl, inquired brusquely: "What do you lack"? The Assistant Director said instantly: "Brain"!

Burns was a student in Goebel's laboratory at Munich. Goebel and his students went on a bicycle vacation trip into Italy. Goebel's heavy German bicycle broke down twice or more. Burns suggested that he get a Columbia or Clarcona bicycle. Replied Goebel: "Ich bin aber Deutsch." However, Burns had him use his machine, and finally after the return home Goebel inquired the best American make. Burns mischievously said: "Ich bin aber Deutsch." Ah, said Goebel, das macht's

Berkeley, Feb., 1935.

nights.

Burns told us many many stories of Pringle. So many that I cannot remember them all. Pringle's herbarium is at the University of Vermont. His daughter once took a parcel of her father's plants directly to H. E. Britton in New York. She stated her errand. Britton, who was often crusty, said: "Mr. Pringle was never married and has no daughter." Miss Pringle: "I will leave the plants. But you will live to retract that statement." She never went back.

Burns, whom I took to the Club today, said that Nichols at Yale tried very hard, by writing letters, to get Professor A. W. Evans, his colleague and chairman at Yale, nominated President of the Botanical Society of America. Apparently the plea was disregarded. - Jan. 28, 1935.

Berkeley, Feb. 1935.

- I have just been looking over a pile of Brandegee plants, chiefly K. Brandegee, but many T. Brandegee. It may have been useful material in the ^{beginning} or when collected. No real labels of course, or if so, without data or only partial data. If there is a locality, there is no date. If there is a collector indicated, there may be no locality or date. All this mess lies chiefly on Mrs. Brandegee. It is remarkable that Mrs. B. should collect so much material and render so much of it useless. The difficulty was in her motive. She wanted material in order to confound someone. Her animosities prevented her from doing a good scientific job. The time expended on expressing her hatreds would have enabled her to do work for California botany never to be forgotten. - Feb. 8, 1935.

[Sacramento, Apr. 1933]

best high shrubs, $\frac{4}{5}$ of a hundred foot row.

Pinus monophylla hurt.

Calycanthus occidentalis hurt.

Lithocarpus densiflora hurt.

Arancaria excelsa not hurt.

Arancaria bidwillii badly hurt.

Schinus molle, hurt.

Arbutus menziesii hurt.

Grevillea robusta badly hurt.

Pinus halepensis (Aleppo

Pine), hurt.

Since some of the above are native species which survive extreme cold in the mountains, I take it that conditions of their growth in the lowland along the river or moisture conditions was a factor in the frost injury.

Sacramento, Frost Injury to Native Trees
Apr. 1933. and Cultivated Trees

-Cont. from vol. 53, p. 106, at * * *

About April the first¹⁹³³ I went to a meeting of the California Botanical Society at Davis. Perice, Geo., as President presided. That evening we had a dinner for the Society in Sacramento. The next day one of Perice's friends, doubtless a former student at Stanford, took us about in Capitol Park. The great frost of December 10-11, 1932 was in evidence, and he told us much of interest as to frost injury:
Oleander - hurt by frost.
Prunus ilicifolia killed - six

Berkeley, Mar. 1, 1935.

Called this morning Dr. Fred W. Foxworthy, late Botanist to the Federated Malay States. He said that in the tropics he sometimes found as many as 100 woody arborescent species on an acre! He was a student of Prof. W. W. Rowlee at Cornell University. In the East he often had to do with helpers from the Imperial School of Forestry at Oxford. He noticed that after Dr. J. B. Dary took charge there that the men were much better trained in systematic botany. Dr. Foxworthy is settling down here to live in Berkeley, having now retired on pension.

- Mar. 1, 1935.

- These two young botanists called today:

Le Roy E. Detling,

Stanford University.

(See also seq. 55;
139.)

Symant Benson
Stanford University
a Bakersfield Junior College

and I took them to luncheon
at the Faculty Club, taking
along Mr. Joseph Ewan, my research
assistant, also.

Returning I gave each copies
of my biography of Mr. Parish,
each a copy, from my excess stock,
of Lemmon's Co-researchers of California
(in Third Report California
State Board of Forestry). - Mar. 9,
1935.

Detling comes from Oregon (William-
ette Valley), grad. Univ. Oregon (Eugene),
went to Idaho Univ. (as teacher), now at

Stanford as graduate student. Benson
comes from Kelseyville, Lake Co.; is
now at Stanford, but goes back to
Bakersfield Junior College (cf. note con-
cerning Benson in "Men & Manners", 10: 28)

- Professor R. W. Chaney, paleobot-
anist, says that leaf venation
in Sargent's Silva is not to be
trusted. Does not exist in the
illustrations or is wrong. C. S.
Sargent was a nabob and
could make sumptuous volumes
typographically. The "monumental"
character resides in the printer's
art.

Apr. 1, 1935

Left Berkeley at 12 noon. Drove to San Jose. Broke an ignition key on my auto. Was sent to an auto shop. The shop made keys and had several large keyboards full of blanks, but after fooling around with their printed books of key numbers for some time, they returned my key saying they could not duplicate it. I went to a gasoline station and inquired for a key shop. In two blocks I found the shop, on a main street, a narrow little hole in the wall, with all the atmosphere of a key place. The key man seemed like a foreigner. He took my key and in a moment he put a duplicate in my hands!

 I drove down, south, the Santa Clara Valley. For miles, the shoulders and ridges of the hills in the Mt.

Apr. 1, 1935.

Hamilton range, east, were aglow with the gold of Basinas. From Yuba I turned easterly across the "Bolson" - for miles gold, a solid gold, with the pure stand of Laetia

(no. 16, 926). The colors are fine all the way to Paicines, where I turn east towards Pancho Pass. Here the glory begins. The hills are only thinly wooded and the opens are shining gold, diadems on the summits, meadellions on the ridges and slopes, but everywhere with the patterns delicately shaded out ^{on the margins of the} opens or laced with simple filigrees of most exquisite design - all set off by the oaks and chaparral of the hollows, gulches and little cañons. One mountain held my enthralled gaze for long - a large asymmetrical but somewhat diversified bulk - which seemed to have had its color blown land

out by an artist. And then one eye wanders further - and yards, ten miles or fifteen miles down the range one sees likewise enrapturing scenes. This represents the "Glory of the Hills".

About 5:00 o'clock I camp in a swale and prepare dinner. Eastward up the slope are the flowering opens. The summit, Panoche Pass, I reach a little after sundown and soon go on in the dark through Panoche Valley and the wide hills below it to Mendota ^{San Joaquin} out on the plain where I stop at 9:00 for the night at a hotel.

Apr. 2, I drive south over the plain towards Coalinga. About seven mi. S. I stop for *Astragalus* (no. 16,928) which is abundant at that spot and go on six miles and stop again on the open alkali

plain, now resplendent with color, to make breakfast. I now discover that I left my botanical pick six miles back, although the plain is in a way so marvelously uniform I am able to drive back to the exact spot without searching. As I say, though so uniform in its low cover of grass and flowers, yet no sixteenth mile is exactly the same to a trained botanist and it is, perhaps, something of a tribute to my observation habits, that on a road I was hurrying over and not paying much attention that I should be able to return on my track so closely. Nowadays I seldom lose my pick, however.

At my breakfast camp I collect on the plain in a tiny flora. *Myosurus* (no. 16,933) with the "spikes" at first erect, later depressed. The plants are also in flower; whitish sepals rotate in anthesis, soon reflexed;

Petals lanceolate, as if nectariferous;
stamens 7.

In a playa within ten feet of
preceding I get *Plantago*

(no. 16,934), its peduncles rotately
decumbent. * It is the dominant in
this tiny playa, just as *Myosurus*
(see p. 99) is the dominant in its
tiny playa. The two are not quite
mutually exclusive in their area but
nearly. The type in each playa may
differ slightly - one (*Plantago*) being
more alkaline than the clay of the
other (*Myosurus*, no. 16,933).

* its spikes ascending or erect.

- One the Mendota - Coalbings road,
about where the Tranquility road
comes in I notice masses of
dead Russian Thistle (*Salsola Kali*
var. *tragus*) by the roadside.

no. 16,926. *Larthenia*

Bolsa, e. of Gilroy. Apr. 1.

see p. 97.

no. 16,927. *Sanicula bipinnatifida*
det. Constance H. & A.

Apr. 1. Panoche Pass under oaks.

no. 16,928. *Astragalus oxyphyllus* (G.)
[*lobata* on folder]

See p. 98. Mendota (5 mi. s.)

no. 16,929. *Lepidium draba* (L.) Desv.
= *Cardaria*

Mendota (4 mi. s.)

no. 16,930. *Deschampsia danthonioides*
(det. B. Crampton, Trin.) Munro ex Benth.

7/76 This grass is frequent

on the Mendota plain s. of Mendota

no. 16,931. *Layia munzii* Hook

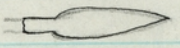
Mendota plain s. of

Mendota.

no. 16,932. *Gnaphalium asper*

Mud flat in field

s. of Mendota, 2 or 3 acres nearly
pure stand.

- ✓ No. 16, 933. *Myosurus*
 Tiny playa on the plain 6 mi.
 s. of Mendota. Sepals whitish, rotat
 in anthesis, soon reflexed. Stamens?
 Sepals with spurs at base.
 Petals 5, → , nectar-
 iferous. See p. 99 ante.

- ✓ No. 16, 934. *Plantago*

Tiny playa, alkaline, within
 ten feet of playa bearing 16, 933.
 The two playas are almost pure,
 that is mutually exclusive.
 Peduncles rotately decumbent.
 See p. 100, ante.

- ✓ No. 16, 935. *Astragalus*
 Mendota, sandy plain, 6
 mi. s.

- ✓ No. 16, 936. *Orthocarpus purpurascens*
 Mendota plain, 6 mi. s.
 of Mendota.

- ✓ No. 16, 937. *Allocarya acanthocarpa*
 Greene. This sorage, trailing

or decumbent, is a very inconspicuous
 member of the plains flora,
 but is, in number of individuals
 and wideness of distribution,
 perhaps a sub-dominant. Men-
 dota plain, 6 mi. s. of Mendota.

- ✓ No. 16, 938. *Microseris*

Mendota plain, 6 mi. s.

- ✓ No. 16, 939. *Microseris*

Mendota plain, 6 mi.
 s., with 16, 938. Peduncles in 16, 938
 about as long as leaves or little
 exceeding leaves. Herbage more
 grayish-pub. in center than in no.
 16, 939. Peduncles in 16, 939 much
 exceeding leaves. One sheet is
 about half-way between.

- ✓ No. 16, 940. *Deschampsia danthonioides*
 (Trin.) Munro ex Benth.
 (det. Beecher Crampton, 7/76)
 This grass is frequent on
 the Mendota plain.

✓ No. 16, 941. *Lepidium garedii* Bdg.

a = one of the branches from

base of a bushy plant 26 in. h.
and as broad. b = another similar
branch.

✓ No. 16, 942. *Phacelia tanacetifolia* Oth.

Luxuriant branching

plants 3 ft. h.

✓ No. 16, 943. *Monolopia gracilipes*

✓ No. 16, 944. *Lepidium garedii* Bdg.

Same as 16, 941,

but a whole plant. 27 in. h.

✓ No. 16, 945. *Lepidium nitidum* Nutt.

Luxuriant stand in wash.

var. *insigne* Greene.

✓ No. 16, 946. *Streptanthus inflatus*

✓ No. 16, 947.

~~Caulanthus~~
Streptanthus coulteri

✓ No. 16, 948. ~~Hamigona~~ *Madia radiata* Kell.

✓ No. 16, 949. *Lepidium garedii* Bdg.

Portion of plant,

same as 16, 941.

✓ No. 16, 950. *Ausimckia* ~~varicosa~~

^{Sukod.}
~~HA. (A. furcata)~~ Large orange corollae.

Sepals mostly 2, sometimes 3.

Plants branching, 2 to 3 ft. h.
Herbage glab. save ciliation on leaves.

✓ No. 16, 951. *Ausimckia varicosa* H.A.

~~var. furcata~~ H.A. Same as 16, 950

but corollas lemon-yellow, and
smaller. Erect, branching from
base. Only single branches
taken.

✓ No. 16, 952. *Ausimckia varicosa* H.A.

Erect, nearly 3½ ft. h. Sheet

taken = 1/3 plant. Marked "c".

Another portion marked "a". Another

portion marked "B" (2 mi. n. of Santa Cruz).
the *A. furcata* form, notwithstanding its small fls.

No. 16,953. *Ausimckia ~~viridica~~ H. & A.*

~~*furcata*~~ ^(Horn) Sepals 2. lobes tri-
angular, flat on back, smooth.

Cor. large, orange.

No. 16,954. *Ausimckia intermedia*

H. & A.

Cor. small, orange.

- *Lepidium garedii* Bdg., no. 16,941.

No. 16,954a. *Montia Claytonia*
perfoliata ~~Donner~~ ^{ex Willd.} Spm. represents one-half
the plant. Plant fleshy.

- On returning to Berkeley I wrote the
following note to my friend Professor
M. C. Flaherty: "I got in last night
from the foothills of the San Carlos
Range, west side of the San Joa-
quin, "a way way down". Never
before have my eyes witnessed such a
spectacle. For forty miles the steep
hills of the Santa region hung
with waterfalls of flowers, broad
gleaming drapes of color, - diadems,
medallions, filigrees of gold on
the summits, ridges and slopes.
All those low hills, in summer so dead
and terrifyingly desolate, were ^(are)
glorified! In the magnificence
of such spaces, most things
of everyday life in towns all compact
seems as very small as as nothing.
My collections demand instant attention
but I will look you up as soon as
the flying hours permit. - W. L. J.,
Apr. 5, 1935

This grass grows on the sandy flats.

No. 16,956. *Astragalus*

The plants on the sandy plain, bushy rounded objects, appeared to be just in flower, that is flowering only, but one soon sees a circle of stems upright with pods lying on the ground. Cor. pale greenish cream

No. 16,957. *Pectocarya*

Sandy plain.

* Nos. 16,955-16,973 lost.

Cantua Hills

For twenty miles the steep slopes and hollows and ridges between the brushy areas are being with a golden drapery of *Monolopia major*. At times the summits are brick-red with *Mentzelia gracilentia*. It is an insult to Mother Nature to suggest it, but constantly there recurred in my mind the thought that some great and daring artist had laid on the colors, here boldly, there delicately, but everywhere exquisitely and with restraint in the making of so splendid a spectacle.

I give the name Buckaroo Penny to *Mentzelia gracilentia* to satisfy friends who will not accept the Latin name - friends who have done so much for me - and who demand names for the plants sent me.

Coalinga Hills, that is hills north
of Coalinga on road
to Santa Creek.

No. 16, 958. *Trifolium*

Plants prostrate.

No. 16, 959. *Plagiobothrys*

Hill slopes, sandy.

No. 16, 960. *Plagiobothrys*

Sandy hill slope.

No. 16, 961. *Microseris*

Heads nodding

in bud, erect in anthesis, nod-
ding in young fruit, erect
when fully ripe. Coalinga.

No. 16, 962. *Oenothera*

Coalinga Hills.

No. 16, 963.

This grass grew in
a flat on the border of a pool.
moist Coalinga

No. 16, 964. *Allocaarya*

Prostrate. with 16, 963.

Apr. 2, 1935

No. 16, 965. *Juncus*.

with 16, 963.

No. 16, 966.

This involuoid grass

with 16, 963.

No. 16, 967. *Lupinus*

flat. Coalinga.

No. 16, 968

This grass grew

with 16, 967.

- I drive into Coalinga and find
that the hotel which is my usual
stopping place has recently burned
and the one remaining hotel is full
to overflowing. Being sent to a private
house, I find a very comfortable
bedroom. The next morning I
drive north, returning over my route,
to the Arroyo Honda Wash; see p.

112

Arroyo Honda Wash, n. of Cantua Creek,
Mendota-Coalinga Road, Apr. 3, '35.
No. 16,969. *Linanthus dichotomus*.

No. 16,970. *Baeria*

No. 16,971. *Amaranthus* ^{*furcata* S. & G.} ~~*viridis*~~
H. & A. Cor. orange, medium.

No. 16,972.

This *Chenopodium* grew in
the wash, in open spots.

No. 16,973*. *Monolopia major*

- I pass the night of April 3 at
the hotel at Mendota - the second time
at this very poor hotel. The next morning
I drive west towards Pancho Pass. As the
clouds threaten rain I am in some doubt,
since, being a dirt road, one could not
well get over the pass if it were wet.
But the day improves as I go on. I stop
on the plain soon and prepare a hot
breakfast over a camp-fire.

* See * bottom p. 108.

113

Mendota Plain, about half-way
between Mendota and Hayes sta.,
E. entrance, Pancho Pass, Apr. 4, 1935.
E. of lower E. of Pancho Valley.

No. 16,974. *Monolopia major*

Usually, but not always smaller on
the plain than in the hills.

No. 16,975. *Plantago*

One of the dominants on the plain.

No. 16,976. *Coreopsis calliopsidea*

Colony of one-fourth acre
or ^{with} scattered [↑] individuals on four acres.

- The plain between Mendota
and the east entrance to Pan-
cho Pass appears to have ^(lower) much
of the primitive vegetation of
early times. *Baeria* (16,988; cf.
also 16,994) is very prominent; there
are colonies of *Coreopsis calliop-*
sidea; in places some *Monolopia*
major. There is much *Lepidium*
rutidum: there are, I judge, a greater
number of individuals of this species
in Cal. than of any other seed plant.

Lower Panocho Pass, e. entrance from the
114 Mendota plain, near Hayes sta.,
near Panocho Hills. (w. of) c. 500 ft.

No. 16, 977. *Monolopia*
Hillslopes.

No. 16, 978. *Matricaria occidentalis* Greene.
Dry flat.

No. 16, 979. *Eatonella cingdoni*
Plants decumbent, 2 ft.

No. 16, 979a. *Pectocarya* ^{= *P. heterocarpa*} *penicillata* A. DC.
^{var. *heterocarpa* Jtn.}

No. 16, 980. *Gilia* ^{minor A. & G. Grant} ~~*multiflora* A. DC.~~
Det. L. J. D. Cor. blue, very small.

Hillslope. = *G. multicaulis* var. *chivorum* v.
(Det. W. L. J.) Jepson.

No. 16, 981. *Mentzelia*
Sandy hillslopes. Notice
the entire basal leaves in one spec.,
perhaps disappeared early in the
others.

No. 16, 982. *Monolopia stricta*
This makes the
color in the colonies which domi-
nate hillslopes, especially steep
ones.

(w. Fresno Co.) Apr. 4, 1935.

No. 16, 983. *Monolopia stricta* 115
Same spot as 16, 982.

Apparently the same but a difference
in length of rays.

No. 16, 984. *Monolopia*
Same spot as 16, 982.

Apparently the same, but a dif-
ference in length of ray.

No. 16, 985. *Eschscholtzia calif.*
~~*caespitosa* Benth.~~
~~*arctica* Torr.~~ Notice the short

white-spreading hairs of stems.
Steep hillslopes. The great colonies
of dark gold in the hills, visible
for ten to twenty miles are of this
species.

— *Nicotiana glauca*.

[Mudota plain, 6 mi. s. of
Mudota * Apr. 2, 1935]

- ✓ No. 16,986. *Thelypodium lasiophyllum*
Greene.
- ✓ No. 16,987. *Eatonella corydoni*
- ✓ No. 16,988. *Galera*
- ✓ No. 16,989. *Plantago* erect.
- ✓ No. 16,990. *Phacelia fremontii* Torr.
Cor. pale lavender,
large, with purple lines in throat;
yellow tube.
- ✓ No. 16,991. *Microseris*
Pale yellow heads 4
lines broad.
- with the above I note: *Erodium cicutarium*,
Orthocarpus purpurascens, *Lepidium*
nitidum. 10th.

* This lot, nos. 16,986 to 16,991,
was collected with the lot recorded on
p. 102 on same day in same general
area of the plain.

Big Panoche Valley,
Apr. 4, 1935.

I stopped in the hills east-
of Big Panoche Valley to bot-
anize. Along the wagon trail
came a man who stopped to
talk. He is a cattlemen named
George Krusetta who lives
somewhere around San Benito,
easterly in the hills from
San Benito perhaps. He says
his wife teaches school at
Tres Pinos, or he may have
said Hollister. He appeared well-
informed, knew the Panoche Paso
country and claimed to have
acquaintance with my friend,
Miss Helen Lillis, whose great
holdings lie over a distance of
perhaps forty miles down the
inner range. He also ^{knows} my friend
Daniel Rohrbach, the lion hunter on
Lorenzo Creek.

✓ No. 16,992. *Tropidocarpum gracile*

Hook.

✓ No. 16,993. *Platystemon californicus* Benth. Sandy hills, making vast areas of white color.

✓ No. 16,994. *Baeria*

This is responsible for the vast leagues of color areas.

✓ No. 16,995. *Poa scabrella* (Thurb.) Benth. (det. Beecher Crampton, 7/76) ex Vasey

This grass grows on the sandy flats in the hills. Geo. Trusetta*, the cattlemen, says it was once more abundant than now; but shows up well this year. It is "bunch-grass" of the cattlemen.

* cf. p. 117

No. 16,996. *Ephedra*.

Sandy hills

✓ No. 16,997. *Festuca reflexa* Buckl. (det. Beecher Crampton, 7/76)

This grass is abundant.

✓ No. 16,998. *Luzia platygloua* (Firm.) Gray ssp. *campestris* Rich. white rays,

yellow below.

✓ No. 16,999. *Amsinckia furcata* Nutt.

Colors the hills with great colonies a half-mile often in extent, a dark gold or burnt amber at a distance. Cor. orange.
↑ deep

✓ No. 17,000. *Castilleja foliolosa* H. & A. Rocky bank, Cherry Hill School, w. of Big Panoche Valley.

Apr. 4, 1935.

Tremendous flowering display.

It consists of:

Platystemon californicus

Monolopia gracilis on hill slopes.

Eschscholtzia californica

Eschscholtzia californica -
away upon slopes high; deeper
color and perhaps different.

A stunning sight is a field
cream color with Cream Cup, and
dwarf *Eschscholtzia* rising as
scattered individuals above
this field.

Another stunning sight is a field
filled with *Orthocarpus purpureus*,
ascens^{orth.} and *Eschscholtzia*
californica mixed. - dense
cover!

Berkeley, Apr. 10, 1935.

- Le Conte Oak (*Quercus agrifolia*)
lost the last of its crown.

Apr. 14, 1935

Left Berkeley about 10:30. About
thence it began to rain and I
was obliged to stop and put up
the top of my car. Went on
south to near Hollister. Raining
once more, I was advised at a
road station not to attempt
the Panoche Pass and so I
reluctantly turned back towards
Pacheco Pass. The beauty of this
pass, with its hills sparsely
wooded with Blue Oak and
Valley Oak is very great. The
miracle of the spring always
stirs one, but the young
foliage ^{just} coming on the native
deciduous oaks allows the eye
and animates the mind with
feelings of youth and beauty
in an unusual degree.

There is much of *Platanus*

racemosa in the broad stream bed of Pacheco Creek. It is still in winter undress, but the faint glow of its crowns indicate the impending change from bare to leafy boughs.

No. 17,001. *Microseris heterocarpa*
Grassy slope, west side
of pass.

No. 17,002. *Plectritis*
Openly wooded slope, -
near oaks. East side of pass.

No. 17,003. *Baeria*
aperta Grassy hill slope.
This makes the gold slopes of
these hills. East side of pass.

No. 17,004. *Forestiera neo-mexicana*
Gray. Shrubs 9 to 11 ft. h.
along creek. East side of pass.
Pistillate inflorescences: in small
flowers

close clusters, little larger than the
scales of the winter bud from
which they burst. Flowers on
short pedicels, without perianth, the
pistil surrounded by 3 or 4
stamens. Staminate inflorescences:
the winter buds surround a cluster
↑ scales of the
of staminate flowers: Each flower
with 5 stamens inserted about
the minute vestige of an ovary.
The stamens may be same
number other than 5, since
they were falling easily and
determination was not easy to
make.

At Las Barras, put up at the
Hotel Obregon, clean and conven-
ient, \$1.00 for the room. Garage
charge for the car 35 cents.

Arroyo Honda wash on the plain,
north of Coalinga, Apr. 15, 1935.

✓ No. 17,005. *Lepidium jaredii* Bg. 300 ft.
Wash, s. of Oil Pump-
ing station.

Driving south towards Coalinga over the San Joaquin plain, I was struck by the large panicles of numerous small white flowers of a plant scattered through the rank vegetation of the wash. I suspect it to be the long-lost *Lepidium jaredii* but its flowers are white. When its flowers on drying turn yellow in some cases, then it is clear *L. jaredii* has been rediscovered since all other characters agree well.
- I drive up Cantua Creek in an attempt to reach (cf. vol. 55, p. 13) home ranch of Miss Helen Lillis. The fords become worse and worse; finally I reach one that I am sure will mire my machine down; so I refrain; return down the cañon to the main road; go on south to Coalinga, where I spend the night of Apr. 15 in the town camp ground. (Cont. p. 125)

Cantua Creek, Fresno Co., on the plain
350 ft. Apr. 15, 1935.

✓ No. 17,006.

Moist hillside, Cantua Cañon.
An inconspicuous composite
✓ No. 17,007. *Festuca reflexa* Buckl.
(det. Beecher-Crampton, 7/76) Grass.

✓ No. 17,008. *Eriogonum* ~~*sp.*~~ *parrisi* (Greene)
(Malvastrum parryi Greene) Jepson

✓ No. 17,009. *Monolopia stricta*

This composite is common on the chalky friable hill-slopes, Cantua Cañon.

✓ No. 17,010. *Linanthus androsaceus*
Gilia parviflora (A. N. S.)

Cantua Creek at Coalinga road. = *Linanthus parviflorus* Greene.

✓ No. 17,011.

This composite grew in the heavy clay-adobe wash of Cantua Creek.

✓ No. 17,012. *Astragalus*

Sandy mesa, Cantua Creek, at Coalinga Road.

Cont. from p. 124. The next morning I run south to Blackwell's Corner, p. 124^{1/2} and on.

- ✓ No. 17,013. *Linanthus dichotomus*
Benth. ss. of him, Sandy mesa
- ✓ No. 17,014. *Pectocarya heterocarpa* HB.
~~var. heterocarpa Htn.~~ With 17,013.
= var. ferocula Htn.

- ✓ No. 17,015. *Oenothera deltoides* Torr.
from ssp. *cognata* A colony, about

80 by 40 feet, very striking
in the sandy grassy flat.
Plants very robust: a central
short shoot always, this coming
first, the other shoots,
in a circle at the ground, de-
cumbent with ascending ends,
— the plants $1\frac{1}{2}$ to $3\frac{1}{2}$ feet
broad! Animal! I dig down
on a foot, the top root has
minor branches and contin-
ually decreased downward as
far as I am able to follow it.
If ^{it arose} from a deep root-stock,
the ascending shoot would be
of one or uniform thickness

and would not bear lateral roots.
I halve the central shoot in
order to get the halves in press.
— Near Animal.

- ✓ No. 17,016. *Rumex hymenosepalus* Torr.
Sandy flat, with pressed.

- ✓ No. 17,017. *Eatonella*
Decumbent! with
ascending ends to the branches
which spread in a circle from
the crown of the taproot. Sandy
flat, with 17,015.

- ✓ No. 17,018. *Pectocarya penicillata*
= *P. heterocarpa*
var. *heterocarpa* Htn. With 17,015. Sandy
flat.

— High slopes of inner Coast Range
opposite Kettleman Hills yellow with
Monolopia major. It is also on the blue
range west of Blackwell's Corner.
Great fields of *Salix cordata*, region
of Blackwell's Corner.

No. 17,019. *Hemizonia pallida* Koch

This undivided

plant grew on sandy flats of the valley floor ^{2 mi} s. of Blackwell's Corner.No. 17,020. *Malacothrix californica* var. *glabrata*

Sandy valley floor, near the oil field s. of Blackwell's Corner. Heads: centers canary-yellow, margins white or with a dull tinge of cream. Spread of heads 2 to full 3 inches!!

No. 17,021a *Amsinckia intermedia* F. & M.

No. 17,021. *Amsinckia tessellata* Gray. For ten miles I notice the foothills (lowest slopes, Tumbler Range) brown-gold with a remarkably uniform sheet of color. As the road draws nearer the foothills I see this color continue over the fields of the valley

floor and come right down to the road. So I stop and collect this *Amsinckia* which is the dominant and responsible for the color. The color is due at this time to the drying of the herbage, not to the flowers. Since the flowers are small, though produced in vast numbers, the flower color might not show at so great a distance - or again it might.

The point where I collect this is about 6 mi. s. of Leslie station, an auto service station, and within a few miles of Gold Hill.

— Extremely steep slopes of the Tumbler Range (north end) just below summits, wherever destitute of brush and mostly above the foothills, all colored with flowers. A very broad low gap between the Tumbler Range and next range north.

- ✓ No. 17,022. *Eriogonum gossypinum*
Chalky hills.
- ✓ No. 17,023. *Lepidium dictyotum*
Gray
- ✓ No. 17,024. *Baeria microglossa*
Greene. This composite
grew at a moist spot in a
gulch, n. slope of hill.
- ✓ No. 17,024a. *Orthocarpus purpureus*
Bth.
- ✓ No. 17,025. *Hemizonia pallida* Kech. Bth.
This madioid plant
in the gulch of the chalky hills
with 17,024.
- ✓ No. 17,026. *Leptochloa*
gypsophilum Ewan. Fls. white with a
faint lavender or brownish tinge
or spotting at tips of sepals, the
general effect dull white.
- ✓ No. 17,027. *Lycium cooperi* Gray.

— Maricopa. The hills to the west
of Maricopa almost completely
covered with *Moulopia major*.
One can see this yellow cover
extending southward in a grand
sweep above the plain to San
Emigdio!

— Cont. from p. 130. No. 17,024. Bracts of
the invol. 5, somewhat rhomboidal, acute.
Pappus-bristles ovate-dilated at base
(better phrasing than "subulate" etc.). Pappus-
bristles 2 or 3. Achenes linear nearly,
scarcely at all "clavate".

✓ No. 17,027a. *Atriplex*
One in the "sage-
brush" of the desert, tho' not far
($\frac{1}{2}$ mi.) from the town.

✓ No. 17,028. *Lupinus*
Peduncles mostly di-
vergent; cor. indigo, the quadrate
spot on banner white, sharply de-
fined. Alkaline mesa flats.

✓ No. 17,029. *Lepidium*
with 17,028.

✓ No. 17,030. *Thelypodium*
with 17,028

✓ No. 17,031. *Mentzelia*
with 17,028. Cor. small, golden.

✓ No. 17,032. *Festuca reflexa* Buckl.
(det. Beecher-Crampton, 7/76)
This grass with 17,028.

✓ No. 17,033. *Lepidium flavum* Torr.
with 17,028.

✓ No. 17,034. *Gilia* ^{minor A. & V. Grant} ~~inconspicua Dougl.~~
= *G. tenuiflora* Bth. var. *sinnata* (Dougl.) with 17,028.

Cor. small, blue, with dull white throat.

✓ No. 17,035. *Oenothera*
abundant

✓ No. 17,036. *Erysimum*
Cor. at first-

gold, soon yellow. Mesa flats,
somewhat alkaline.

✓ No. 17,037. *Lepidium fremontii*
Mesa flats,

somewhat alkaline.

✓ No. 17,038. ^{= *Descurainia*} *Sisymbrium*

Dense colonies in
broken ground along roadway, for
a mile; very little or none back
on mesa. Flowers greenish*.

✓ No. 17,039. *Baeria*

— *Yucca brevifolia*. Also ss. of
Nevada.

— *Juniperus californica*, 2 mi. w.
of Lancaster, large trees 6-12 ft. h.,
making a show on the plain.

— *Erysimum* no. 17,036, a good deal of
it scattered through the alkaline sage-
brush flats.

* The effect is, as if the racemes had
not yet come into anthesis, yet the
plants have well-developed pods!

No. 17,040. ~~*Eremophila*~~ *Sphaeralcea exilis* (Gray) ^{Green}

Cor. dull white, shorter

than the calyx. Calyx - lobes
abruptly acuminate.No. 17,041. *Mentzelia*No. 17,042. *Pectocarya paniculata*
A. DC.No. 17,043. *Descurainia*
*Sisymbrium*No. 17,044. *Cryptantha* ^{decidua (Jones) Heller}No. 17,045. *Amsinckia tessellata*
Gray.No. 17,046. *Eriodorum gracile*
Hook.No. 17,047. ^{not} *Gilia latiflora* Gray
ssp. *Davyi* (Wilm.) A. N. S. Grant
~~*G. davii* Meko~~ Light blue cor. limb,the throat dark blue. Yellow spot
in throat below each lobe, above the
dark blue band below, the spotobovate. Lavender tint on upper
part of cor. lobes.No. 17,048. *Malacothrix californica*
Central fls. yellow, the
margin white.No. 17,049. *Phacelia bicolor* Torr.
Cor. lavender.No. 17,050. ^{not} *Plagiobothrys notho-*
fulvus Gray. Leaves brown-mar-
gined. = *P. arizonensis* Greene.No. 17,051. *Nama demissum* Gray.
Cor. dark crimson.No. 17,052. *Oenothera deltoides* ssp.
cognata (Jeps.) Klein Cor. white, soon fad-
ing pink. Perennial!No. 17,053. *Tetradymia canescens*
(damaged, destroyed)No. 17,054. *Layia glandulosa* (Hook.) H. & A.
Rays clear whiteNo. 17,055. *Phacelia distans* Bth.
Cor. lavender.[See note on p. 138]*
Yucca brevifolia mesa.

✓ No. 17,056. *Eriogonum* ^{Rocky slope.} *Haplopappus*

linearifolius DC.

✓ No. 17,057. *Lupinus nanus* Dougl.

Very abundant on the slopes. Cor. blue, the central spot on banner reddish-brown.

✓ No. 17,058. *Chaenactis*

Cor. bright golden yellow.

✓ No. 17,059. *Cryptantha muricata*
Nels. & Mcbr. cf. 17,065.

✓ No. 17,060. *Gilia latiflora* Gray
var. *exilis* (Gray)* Cor. light bluish-lavender, throat yellowish.

✓ No. 17,061. *Stipa speciosa* Trin. & Rupr.
(det. Beecher-Crampton, 7/76)
This grass grows in

heavy stools.

✓ No. 17,062. *Melica imperfecta* Trin.
(det. Beecher-Crampton, 7/76)

This grass grows in

heavy stools.

✓ No. 17,063. *Lupinus*

Cor. purple, the banner whitish.

✓ No. 17,064. *Prunus fasciculata* Gray.

Bushes, intricately and densely branched, 2 to 3½ ft. h.

✓ No. 17,065. *Cryptantha muricata*
Nels. & Mcbr. cf. 17,059.

✓ No. 17,066. *Phacelia tanacetifolia*
Bth. Cor. lavender-blue; abundant

✓ No. 17,067. *Lolium subpinnatifidum* Lag.

✓ No. 17,068. *Carex*

Rays gold!
yellow, disk

✓ No. 17,069. *Emmenanthe penduliflora*
Bth.

✓ No. 17,070. *Streptanthus*

[*Caulanthus Coulteri* Wats.]
det. R.C.B. 10/25/63

Apr. 17, 1935

no. 17,071. *Astragalus antisacii* Gray
Cañon bottom.

no. 17,072. *Isomeris arborea*
Hill slopes.

— cont. from p. 140 at top.

Bailey's Well is about 3 mi. S. of
the east-and-west road between

Kane Sprs. and San Felipe Narrows.

— I stop with Dr. H. de Tarent in
Los Angeles on Apr. 18 and the next
day (Apr. 19) he goes with me to the
Colorado Desert (see pp. 139 et seq.).

[Note for p. 135 at bottom *.]

This mesa is dominated by
Lycium sp., *Chrysothamnus* sp.,
Atriplex sp., none in fl. or fr.,
and *Yucca brevifolia*. It is the
mesa on which were collected nos.
17,040 - 17,055.

Riverside Co.

Apr. 19, 1935

no. 17,073. *Chorizanthe*.

This plant common

on the flats.

no. 17,074. *Filago californica*

on the sandy flats.

no. 17,075. *Hymenoclea salsola* Tuck.

Sandy flats

no. 17,076. *Chaenactis*

Sandy flats.

no. 17,077. *Lolium strigosum* Greene
Sandy flats.

no. 17,078. *Lupinus polycarpus*
Greene
Sandy flats.

no. 17,079. *Cryptantha intermedia*
Greene. Plants also much

larger not taken, 2 times as high

and more branching.

no. 17,080. *Encelia*

Rounded bush 3 ft. h.,

4 ft. broad.

dimarily but one lateral bud develops and the tall stems are therefore simple by sympodial branching. As the stem increases in thickness, the crookedness disappears, the stems straighten out.

✓ No. 17,096. *Croton californicus* Mull. Arg.

Stems many, or rather branches many, interwaving and forming an erect brown-like tuft 5 ft. h. At other times more rounded, but still an erect bush, 2 to 3 ft. h.

✓ No. 17,097. *Olneya tesota* Gray
Bush-like trees

10 to 16 ft. h.

✓ No. 17,098. *Krameria*
Low bushes 1 to 2 ft. h.

✓ No. 17,099. *Parosela*
Rounded bushes 2 to

7 ft. h.

✓ No. 17,100 *Hilaria rigida* (Thurb.) Benth.
ex Scribn.
(det. Beecher-Crampton, 7/76) galleta Grass.

✓ No. 17,101. *Aristida californica* (Thurb.)
(det. Beecher-Crampton, 7/76) This grass
is not common here.

✓ No. 17,102. *Chaenactis*

✓ No. 17,103. *Cryptantha micrantha* (Ton.) Jtn.
This large group on

the sandy banks.

✓ No. 17,104. *Calyptridium monandrum*
Muhl.

✓ No. 17,105. *Stillingia linearifolia* Wats.

The living stems on this bush (18 in. h.) are few and on one side of the dense mass of old stems which make a compact bush or broom, so to speak, the stems turned in from both sides towards the top, an erect rounded mass of dead stems of many previous years.

* Perhaps better 250 ft. "350 ft." used in 46:218 ante; a pure guess of my own.

144

San Felipe Narrows, San Diego Co.

c. 350 ft. (e.)

- ✓ No. 17, 106. *Dithyrea californica* Harv. (frequent)
 This *crucifer* seems in.
 ✓ No. 17, 106a. *Chorizanthe*
 ✓ No. 17, 107. *Cassia armata* Wats.

- ✓ No. 17, 108. *Oenothera*

900 ft. Yaqui Well [See p. 147 at *]

- ✓ No. 17, 109. *Eucelia*

In shade.

- ✓ No. 17, 110. *Lycium brevipes* Bth.

Dense bush 7 ft.

h., 10 feet broad. Cor. lavender, the throat whitish with dark purple longitudinal lines. This seems nearest *L. fremontii* as one looks at it in the field. Calyx cylindric, its lobes narrow, acutish, $\frac{1}{4}$ as long as tube. Corolla glabrous, its lobes suborbicular. Calyx $\frac{3}{4}$ as long as cor.-tube. Nearest *L. fremontii*.

- ✓ No. 17, 111. *Isomeris arborea* Nutt.

stellata Heller

- ✓ No. 17, 112. *Gilia* ~~acrostichia~~ ^{rough}
 Yaqui Well

Yaqui Well, Apr. 20, 1935

subglobose w. ligules 145

- ✓ No. 17, 113. *Delphinium* ~~Barryi Gray~~
 fls. dark rich blue. Rocky slope.
 ✓ No. 17, 114. *Pectocarya linearis* DC.

- ✓ No. 17, 114a. *Pectocarya pinnellata* DC.
 = *P. heterocarpa* Jtn.
 var. *spissa* Jepson. See p. 155 at bottom.

- ✓ No. 17, 115. *Cryptantha barbiger*
 Greene.

- ✓ No. 17, 116. *Lepidium*

c. 1300 ft. Hill in San Felipe Valley. Apr. 20.

- ✓ No. 17, 117. *Pterostegia drymaroides*
 Shade of Rhus shrubs.

- ✓ No. 17, 118. *Phacelia affinis* Gray.
 Cor. small, whitish

-lavender.

- ✓ No. 17, 119. *Cryptantha* ^{*micrantha* var.} *lepida*
 (Gray) *Eremocarya micrantha* Greene var.
~~*lepida* Heller~~

- ✓ No. 17, 120. *Cryptantha micrantha*
 Jtn. This borage grows on
 the sandy slopes.

No. 17, 121.

This polygonoid seems

rare.

No. 17, 122. *Lupinus concinnus* Legum.
Cor. lavender.

Sandy slopes.

No. 17, 123. *Haplopappus*
~~*Eriogonum*~~*linearifolius* DC.No. 17, 124. *Caulanthus simulans*
Payson (det. A.C.B. Dec. 1967)
Fls. yellow, thepetals small, yellow. This crucifer
is frequent in rich spots, especi-
ally in shelter of woody growth
and in moist meadows.No. 17, 125. *Lotus rigidus* (Benth.) Greene

Banner light yellow.

very prominent, remarkably larger
than keel and wings. erect bush.No. 17, 126. *Phacelia affinis*

Gray.

Cor. small, white,
narrowly funnelform, narrow
limb.No. 17, 127. *Oenothera*

Rare here.

No. 17, 128. *Eriogonum thurberi*No. 17, 129. *Yucca schidigera* Rezel.
8 ft. tall.No. 17, 130. *Cryptantha pterocarya*
(Torrey) Greene.No. 17, 131. *Lotus strigosus* Greene

* [Yaqui Will. Cont. from p. 144]

List of plants noted:

Acacia greggii.*Isomeris arborea*.*Isocoma veneta*.*Franseria dumosa*.*Chilopsis saligna*.*Olneya tesota*.*Lycium* (no. 17, 110).No. 17, 132. *Beaumontia leucodermis*

Greene.

Apr. 20, '35. Banner Canyon.

No. 17, 133. *Ranunculus*No. 17, 134. *Lotus saliciginosus*
GreeneNo. 17, 135. *Thermopsis*

Colony in a field, 2

acres, rather dense.

No. 17, 136. *Sanicula*

The leaves are remarkable*

No. 17, 137. *Plagiobothrys niothofolius* Gray
Whitens the
country-side in open slopes
and flats

* The segments turn up in an irregular manner, so that the effect is cushion-like or flubby.

No. 17, 138. *Sidalcea malvaeflora*

Valley flats.

No. 17, 139. *Sanicula arguta* Greene

det. Shau & Constance

copied by R. G. 48-49.

jun. d. label. Valley flats.

No. 17, 140. *Linanthus dianthiflorus*
Greene.open hill slopes,
sandy.No. 17, 141. *Baeria*

Open hill slopes, sandy.

No. 17, 142.

This grapholoid

plant is rather common on sandy
flats.No. 17, 143. *Plantago*No. 17, 144. *Plagiobothrys tenellus*
Gray.No. 17, 145. *Lupinus*

- *Artemisia tridentata* - Warner's Hot Sp.
Country around Hanshaw Lake very
beautiful and unspoiled by man.
Valley full of *Oenothera biortata*.
Also much *Pentstemon centranthifolius*.

No. 17, 146. *Louatium*

Sandy hill

No. 17, 147. *Liranthus dianthoides* (Eudl.).
This "Fringed Pink"grows on the gentle sandy hills,
here in great abundance
over four or five acres, making
spots of color. = *L. dianthiformis* Greene.No. 17, 148. *Liranthus lemmonii*
Greene.

Sandy hills.

No. 17, 149. *Gilia* ^{angelensis V. Grant} ~~multicaulis Bth.~~
form of. Cor. pale blue;

Sandy hills.

No. 17, 150. *Gilia* ^{angelensis V. Grant} ~~multicaulis Bth.~~
form of. Cor. blue; sandy
hills.No. 17, 151. *Ceanothus greggii* Gray.
[M-1]
var. *perplexans* (Gre.) Jeps. common.* Near one of the government unemployed
relief camps ("S. Ewer, R. A.")No. 17, 152. *Phacelia minor* Benth.
very very common, coloring
the brushy slopes with spots of
blue.No. 17, 153. *Nemophila menziesii*
H. & A. Cor. large, though not
so large as (*N. menziesii*;
pale but bright blue with
whitish center. Thicket borders.
Darkens in drying (cor.).No. 17, 154. *Palmaria*
Chaparral flat. Sandy soil.No. 17, 155. *Oenothera*
Sandy flats,
often coloring 10 or 20 acres.No. 17, 155a.
This umbellifer with
no. 17, 153.

* Near "La Puerta Cruz", forest entrance.

- ^vNo. 17, 156. *Lupinus*

Banner red-purple; wings purplish. 2 1/2 ft. h., bushy, erect.

- no. 17, 157. - Sambucus

Swale.

- ✓ No. 17, 158. *Phaselia minor* Shell. heavy stools.

- No. 17, 159. *Cryptantha intermedia* Greene. abundant;

Sandy soil.

- ✓ No. 17, 160: ~~Lastarriaea~~

Chorizanthe coriacea Sandy soil.
Goodman

* Near branch road to "Pines".

- ✓ No. 17, 161. *Mimulus brevipes*. Bth.

- Nov. 17, 162. *Sisymbrium*

- No. 17, 163. Stipa lepida Hitchc.

(det. Beecher Crampton, 7/16) Slip grass grows in

— "Marihuana" is a banned word in Los Angeles Co. because from it are made the drug cigarettes for drug addicts. Dr. A. D. Hough-ton gave me to understand that the plant involved was a coastal *Astragalus*, perhaps *A. leucopais*. If so, what part is used? Probably the leaves. It would be a substitute drug for *Cannabis sativa*.

* Near branch road to Hermet.

No. 17, 164. *Cercopsis*steep brushy
gravelly hill slope.No. 17, 165. *Bastillea foliolosa* H. & A.

with 17, 164

No. 17, 166. *Phacelia fremontii* Torr.

Cor. blue; throat

yellow. About 2 miles from pass, desert

No. 17, 167. *Gilia* ^{not} ~~*menziesiana* Dougl.~~
G. tenuiflora var. *late flora*. Cor. blue, throat

lightish in color. With 17, 166.

No. 17, 168. *Linanthus parryae*Greene. ^{not}

with 17, 166.

No. 17, 169. *Linanthus bigelovii*Greene. = *L. dichotomus* Bth. with 17, 166.No. 17, 170. *Gilia* ^{sinuata} ~~*inconspicua* Dougl.~~

Cor. blue. With 17, 166

— *Yucca brevifolia*.No. 17, 171. *Thelypodium*This *thelypodoid* has small
yellow corolla, the petals little exceed-
ing the sepals. Sandy mesas.No. 17, 172. *Filago californica* Nutt.This *Filaginaceus* plant

is not common.

No. 17, 173. *Oenothera*Sho. *Barnardii*, C.
Hinkley. Cor. yellow.No. 17, 174. *Oenothera*

Hinkley. Cor. white.

No. 17, 175. *Malacothrix glabrata*

Hinkley. Ligules pale cream, center yellow.

No. 17, 176.

Hinkley. Ligules pale cream.

No. 17, 177. *Chaenactis*Fls. white, marginal cor-
ollas enlarged. Hinkley.No. 17, 178. *Chaenactis*Fls. white, marginal corollas not en-
larged. Hinkley.No. 17, 179. *Oryzopsis hymenoides* (Roc. +
Schult.) Ricker in p.This "rice-grass" is abundant on
the sandy flats near Hinkley. (det. B. Crampton 7/76)

— Cont. from p. 145, no. 17, 174a.

Nublets very variable, even in one fruit:
with a border of fine hooked spines,
with slender spines and triangular-based
spines in one circle.

* See p. 161.

Miss A. L. Waterman says: "The Texas Sandbur has gotten into our alfalfa fields and is the most serious pest we have had to deal with. The burr sticks in the throats of sheep and soon the sheep is sick and may die. It requires special and prolonged individual nursing to bring the sheep through." * See p. 162.

The Puncture Weed (*Tribulus terrestris* L.) we call Goats Head, on account of the two horns that are so prominent. It is a very objectionable weed with us. Over at Hinkley it has been a terrible pest. The hay crop at Hinkley has always been considered very fine - perhaps the finest in quality in California. Now, it is ruined by the Goats Head, and is nearly unsaleable.

For "greens" we often use desert plants. We gather the leaves of Desert Cabbage (*Brassica inflata*) in the early spring. The leaves are cooked and make a very fine dish. See p. 159.*

I call [*Hesperocallis undulatus*] it Mesa Lily, because it always grows on the mesas.

The ore bins at the Alpha-Omega mine were made of willow and cottonwood from the Mohave River. These bins, made in 1878 are sound today - or at least until stolen a short time ago by thieves. The cottonwood timbers put down in the mine when the shafts were dug () are sound today. Mine shafts in the desert keep dry. The Indians employed by us on the ranch used as food the

poles of the true mesquite (*Prosopis glandulosa* *gulfiflora* var.)

They pound the beans into a meal. This meal is then made into cakes which tend to solidify by mere accretion. From this block or cake a piece is cut off for eating. It is most excellent. My fondness for it is very great. It is both sour and sweet. That is, it has its own sourness and its own sweetness."

— Mr. William Merriells says: "Water is usually shallow wherever you find the genuine mesquite (*Prosopis gulfiflora* var. *glandulosa*). In sinking a dug well, I once traced down the roots of the live oak (*Quercus agrifolia*) to a depth of 54 feet. Attempts to find water had been unsuccessful on

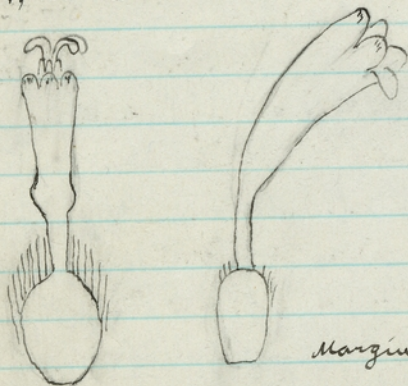
the place. Two wells had been sunk, one to 120 feet, one to 75 feet and were dry at the bottom^{**}. There were some oak trees on the place and I suggested putting down a well near the trees. It was a dug well. I dug it. The oak roots went on down and down, flattening between the fissures of the rocks, until they got to living water."

— Cont. from p. 157. * "We use Lambs Quarters a good deal for 'greens'. We take the tender tops, in their young growth before maturity (*Chenopodium album*).
— "Desert Bangle" = *Streptanthus* in-
flatus.

** Six or eight miles east of Redlands in the foothills.

160

Daggett, Mohave Desert, April, 1935.
 no. 17, 180. *Eucelia*



disk cor.

Marginal Cor.

Disk corollas: lobes with a tuft of hairs on back.

Marginal corollas with enlarged throat and spreading limb, somewhat *Bhaenactis*-like.

Bracts of receptacle subtending each fl., at apex green-tipped and a little hooded. Collected by Mary Beal, 2 miles e. of Van Dyke Ranch. It is remarkable in that, rayless, it

Apr. 25, 1935.

161

yet has marginal corollas enlarged, or some ^{like} of them, so enlarged as to appear a little bilobate and therefore strikingly different from the disk corollas.

William Merrilees, Waterman Ranch, water tender, says: "When I was working 'inside' on well work, sometimes I got wry, and when there was moving to be done, between jobs, I would ask the boss to let me go for a few days. Then comes a time when I've got to go and see what is on the other side of that hill".

"Something lost behind the ranges".

*

Cont. from p. 155

Nos. 17, 173 to no. 17, 179 were collected south of Hinkley, to the west of Barstow. Cont. p. 176.

— Indians shear Miss Waterman's sheep. When finished, she says to one of the men: "Come back next year in April and shear my sheep again." But to these men the future is very uncertain. They are not used to planning so far ahead. So they say: "Well, if we are alive." "All right, then," says Miss Waterman. "Yes," say they, "but we may not live ^{until} then." "Well," says Miss Waterman, "if you are alive, and my sheep are alive, and I am alive, come." "Very well," say they, "if we are alive."

— Cont. from * p. 156. It was my understanding that this plant was a grass, I think. If a grass it must be *Bechnus pauciflorus* Bk. It could not be *Franseria dumosa* which would not be a part of that degree in sebae.

No. 17, 180a *Eremonax mohavensis* ^{fr.}
Eriophyllum mohavensis → Jepson.
The oblong-^{broadly}ovate (or elliptic) pappus scales stand in a closely erect overlapping circle. I make counts as follows: 15, 16, 14, 13, 14. Pappus-scales obtuse. 2500 ft.

The plants branch shortly and closely. The heads with subtending leaves making a ^{direct} close flat-topped inflorescence which lies flat against the ground like a tiny mat. For discovery narrative see p. 167.

Fls. in a head: 3, 3, 3, 3, 3, 4.

Leaves ^{broadly}oblanceolate, or a little enlarged at apex in such a way as to be a little spatulate, obtuse, tipped with a short hard point, or sometimes 3 at apex, or sometimes shortly 3-toothed, each tooth with a short hard point or cusp.

See note on habitat, p. 167 at bottom.

Achenes gray with a thin layer of upwardly appressed hairs.

- ✓ No. 17, 180b. *Malacothrix simeoides* T. & G.
Ligules canary yellow,
uniform. Sandy flats. Leaves
pinnatifid, the segments dentate,
cuspidate. Leaves a little fleshy.

T short-
steriles cylindrical, ribbed as nerve, a narrow
crown at apex. Receptacle bristly with
long white hairs. Cont. p. 178.

- ✓ No. 17, 180c. *Orthocarpus purpurascens*
var. *ornatus* (H. & A.) Jepson.

- ✓ No. 17, 180d. *Gilia latiflora* Gray.
ssp. *latiflora*
Cor. tube short, slender,
abruptly expanded into the throat.
Cor. light blue.

- ✓ No. 17, 180e. *Coreopsis*
Ray Cor. yellow.

- ✓ No. 17, 180f. *Eremocarya micrantha*
Greene. ^{= *Cryptantha*}
A frequent borage on the
flats.

- ✓ No. 17, 180g. *Ptilactis Coulteri* Gray.
This low composite
has yellow disk and spreading ^{leaves} rays.

- ✓ No. 17, 180h. *Eriophyllum*

- ✓ No. 17, 180i(a). *Festuca octoflora* Walt. var.
hirtella Piper

(det. Becker-Crampton 7/76)
This grass grows on
little "sterile" or naked spots on the
flats. 17, 180(b) *Distichlis spicata* (L.) Greene

- ✓ No. 17, 180j *Glyptopleura marginata* Eat.
var. *setulosa* Jepson. (Cont. p. 170.)
This cichoriad grows

on the sandy flats. Ligules relatively
few, white. Stems several from the
base, shortly and densely branched,
— the stems, branches, peduncles very
fleshy. Leaves white-bordered.
See no. 17, 191.

- ✓ No. 17, 181. *Plantago*

Abundant in spots.

- ✓ No. 17, 182. *Astragalus*

Cor. pale white.

- ✓ No. 17, 183.

This grew in sandy

spots.

- ✓ No. 17, 184. *Salsola Kali* var. *tenuifolia*.
Has come into this district
within 2 or 3 years. Leaves slender,
fleshy, cylindric or nearly so,
towards base planish above, that
is, semi-cylindric. Sheep eat it
eagerly when it is young - in
the vegetative stage. These spms.
obtained on the desert, but it has
invaded pastures at Waterman
Ranch. Barstow.

- ✓ No. 17, 185. ^{*Cryptantha*} *Greeneochloa circum-*
scissa Rydb. This sorage is of
the desert flats, sandy, at Hinkley (s.
of).

- ✓ No. 17, 186. *Oenothera primiverris* Gray
Hinkley. Cor. yellow.

- ✓ No. 17, 187. *Eriogonum mohavense*
Fls. yellow.

- ✓ No. 17, 188. *Nemacladus*
By Iverson Hill, Barstow.

- ✓ No. 17, 189. *Lomatium mohavense*.
Iverson Hill, Barstow.

- ✓ No. 17, 190. *Chaenactis*
Delicately fragrant
(like a lady's bonhair). Iverson
Hill, Barstow.

- ✓ No. 17, 191. *Glyptopetala setulosa*
Same as 17, 180j.
Iverson Hill, Barstow.

- ✓ No. 17, 192. *Monoptilon*
Iverson Hill, Barstow.

- ✓ No. 17, 193. *Eriogonum gracillimum*
Iverson Hill, Barstow.

- *Eriophyllum mohavensis* Jepson. I
have been searching for this plant
(^{no. 17, 180a} for many years. Miss Bidella G. Wood-
cock gave me very confused and
contradictory directions for finding
it. One phrase, Iverson Ranch, in
her letter proved correct. Miss Mary
Beal ^{and I} worked ^{without results} through the washes
and over the mesa back of

the Iverson house which is on road about $\frac{3}{4}$ mile east of Waterman Ranch. Then I said to Miss Mary Beal, dweller in the desert, who had been making the search for years under my direction: "I am going to the top of the rocky hill (behind the Iverson house)". I did and found nothing. I worked down the east slope, going around the hill to the north, searching all the draws. I met Miss

Beal who had worked to the left and joined me. Then I made backward over a tiny ridge between Iverson Hill and a hill northwest. At or near the top of the hill-ridge, on a fine gravelly area, I found a colony of the plants - a few scattered over a small area. I called to Miss Beal: "I have found

it! I have found it!" Miss Beal came up and we gathered a number of the plants. They occur in little colonies, one ^{plant} here, another ^{plant} a foot or six feet away, very inconspicuous - making flat mounds very tiny. Corollas yellow. Over the low crest of the ridge, on the south slope, a few thin colonies were found, on just such gravelly areas as on the north slope. They do not occur in washes nor on the sandy mesas or sandy slopes, nor on rocky hills or rocky slopes. On these fine gravelly areas, finely broken rock, nothing else grows in the spots which they inhabit. See no. 12, 181 note. Corolla-lobes 5, ovate, acute, spreading, or better, triangular and a little longer than broad. Involucral bracts 4, a little keeled, obtuse at apex. Leaves entire, 3-toothed at apex, or 2-toothed, the number of entire ones equalling toothed ones or greater in number probably. The diag-

nosis in the Manual is incorrect as follows: plants flat-topped not "rounded"; leaves entire more frequently than "3-toothed at apex"; involucre bracts 4, no "3s" found so far; pappus-paleae 13 to 16 in my counts, not "11 to 13"; peduncles ($\frac{1}{2}$ or) 1 to $2\frac{1}{4}$ lines long. * As I go on examining the fresh heads, this is to be said: perhaps there are as many "3s" as "4s".

— *Glyptoplena marginata* var. *retulosa* Jeps.
Leont. from p. 165, no. 17, 180. I am referring this to the var. on the basis of the exserted ligules, although the outer bracts bear teeth along the sides as well as at the dilated tips. My corrections of diagnosis in Manual are as follows: stamens very fleshy!; achenes always 5-angled, but the sides not equally pitted. Pits occur conspicuously on the 2 sides (of the 5) on the incurved face of the achene. The paleae are perhaps always curved, at

least a little, commonly very markedly, on the incurved faces, as I say, the pits are sometimes most marked. The pits are so obscure on some achenes that the student may feel that he has not gotten the right genus. The features of the achene that are most prominent are: 1. The transverse corrugations; 2. the constrictions just beneath truncate apex of achene; 3. the beak which is set on the truncation. (short-cupulate

The Key (p. 981), ^{no. 23,} ~~is~~ ^{were} better to read: achenes 5-angled, the faces between the angles transversely corrugated, ^{each} with a row of pits, or sometimes the pits obscure; achene constricted beneath the truncate apex, the truncation bearing a short cupulate beak.

Curiously, one cannot well see the pits unless you look right down into them from above. I try again as

follows: achene a little curved, 5-angled, transversely corrugated, a row of pits in the intervals, constricted beneath the truncation bearing the truncate apex, a short cupulate beak.

Leaf-blades as much as 1 in. long, usually more than "6 lines" in my material. Plants forming a thick mat, scarcely a "tuft", as much as 4 in. broad. Ligules white. Inner bracts of receptacle linear, narrowed upward.

- ✓ no. 17, 194. *Calycoseris parryi* Gray.
Daggett. Mary Beal. Ligules canary yellow. Corrections of diagnosis: bristles on receptacle short and few; inner bracts of receptacle not "numerous", but many (that is 10 to 12). Achenes sulcately 5-angled, about twice as long as the beak. Leaves scarcely "mostly basal", the cauline rather many. The "shallow

"denticulate crown" is quite distinct and exterior to the circle of pappus. bristles united at base. As to generic key on p. 981:

Plants forming a thick ^{or dense} mat. no. 22.

Plants openly branched, erect. no. 23.
As to genus diag. p. 1008: beak scarcely "short". Receptacle briefly (∴ key to genus wrong).

- ✓ No. 17, 195. *Linanthus densus* Greene.

Daggett, Mary Beal.

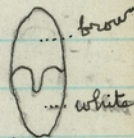
- ✓ No. 17, 196. *Aster tortifolius* Gray
(*A. abatus* Blake) Barstow

- No. 17, 197. *Eriogonum reniforme*
Barstow.

- ✓ No. 17, 198. *Hemocladus*

Upper cor. - lobes white with a brown blotch on upper half.

Two clusters of 5 parallel bristles arising from 2 glands on upper side of tube near base. Upper cor. lobes broadly oblong, acute, white; lower lobes linear, a brown blotch near apex



- Theodore Van Dyke said to Governor R. W. Waterman: "You told me that there was beauty in the desert. I came to find out. There is." Van Dyke, the author of several books, was an eccentric. He did not believe in novels and would not let his children read them; he burnt up his set of Dickens; likewise the funny papers. He did not send his children to school, or not to any degree; set them down at a table with a book before and told them to learn to read. He learned Latin and Greek himself after he was 50.

His brother, John Van Dyke, also an eccentric, came from San Diego (his home) to see his brother who had settled at Daggett. He is the author of "The Desert". John Muir had sent his consumption-stricken

Apr. 25, 1935.

daughter to the desert - to the Van Dyke ranch, and he has become acquainted with the Van Dykes. The two Van Dyke brothers and John Muir built a chimney for the house. It was no good, because as a fireplace it always smoked.

- S. Wallace Austin, class of '86, U.C. was a fine-grained sensitive gentleman, but Mary Austin criticizes her husband severely in her autobiography, Lost Horizons. Members of the class of 1886, says Miss A. L. Waterman, resent this biography and take a fling at Mary Austin, in print, whenever they can.

- *Lycium* ^{torreyi} no. 17, 209. See p. 179.

Has red berries. In good years there may be a fine crop. The Indians gather them. A basket is hung over the back and the berries are gathered and thrown over the

176

Barstow, Apr. 25, 1935.

left shoulder into the basket. The Indians are extremely fond of them and tell Miss Waterman that in white ^{man's} language they are "grabs", that is Indian Grapes.

- Cont. from p. 161 at *.

On this trip Miss Mary Beal was with me for the afternoon. We ran into a single sp. of *Chaenactis* (17, 176) while collecting, as if the species were a rarity - a single individual. But working further we found the center of the colony - by exploring at large over the flat. Many things not especially uncommon are in little colonies with wide spaces between where not found, though the general face of the desert seems so uniform.

2200 ft. Barstow, Apr. 26, 1935

177

No. 17, 199. *Langloisia schottii*
(Torr.) Greene. Cor. 2-lipped, white, with faint purple markings, upper lobe divergent; lower approximate, all oblong, acute.

No. 17, 200. *Linanthus demissus*
Greene Sandy wash, rel. rare.
Barstow.

No. 17, 201. *Eriogonum maculatum*
Barstow.

No. 17, 202. *Langloisia Matthewsii*
Barstow. Large
pink-cor. one.

No. 17, 203. *Nema demissum* Gray

No. 17, 203 a. *Compositae*

No. 17, 204. *Gilia* ^{cana. Jones ssp. spec. formis A. V. Crane} ~~inconspicua~~

Dough. var. Small pale lavender cor.
No. 17, 205. *Gilia latiflora* Gray, small-flowered!

No. 17, 205. *Gilia* ^{stellata Heller} ~~inconspicua Dough.~~

var.

No. 17, 205 a. *Gilia micromeria* Gray
Lavender cor.
var. *h. d. Horner*

✓ no. 17, 206. *Oenothera*
 cor. yellow or somewhat
 cream-color.

✓ no. 17, 207. *Oenothera*
 cor. white.

- Cont. from p. 164, no. 17, 180b. This
 does not "work down" in the genus
 key well. It seems to have no seed-
 ing buds. This point should be
 taken care of. Try there no heading.

Pappus promptly deciduous.

Achenes merely striate.

Achenes beaked or beakless.

Under genus 26 (p. 981) "^{man.} pappus
 persistent", but no mention under
 corresponding head.

- Cont. from p. 163, no. 17, 181. Pappus
 nearly as long as tube and throat.

In *Eriophyllum wallacei*, pappus $\frac{1}{4}$ or $\frac{1}{5}$
 tube and throat.

✓ no. 17, 208. *Oenothera*
 cor. white.

✓ no. 17, 209. *Lycium torreyi* Gray.

See p. 175 ante. One

branchlet has slightly larger
 fls, only one flower in a fascicle.

- Continued from p. 9. ante *.

Being unwell I went away.

The following attendants of
 the meeting called at my
 laboratory: Dr. T. A. Beck-
 with, Los Angeles; Dr. Annie
 M. Hurd Kerner, Washington
 D.C.; Roland W. Harper,
 Alabama; Dr. Herman Kuehn,
 San. Joss.

Calico Wash, April 27, 1935
 nr. of Barlow, Mohave Desert.

✓ No. 17, 210. *Echscholtzia glyptosperma*
^{green}
 Lewis in a lift at base. Two

miles beyond collecting spot, it was a
 dominant var many acres.

✓ No. 17, 211. *Gilia* ^{stellata Heller}
~~*insensipiensis* Dougl.~~

var. *sinuata* (Dougl.) Small lavender-tinted
 flower. = *G. tenuiflora* Oth. var. *sinuata* (Dougl.)

✓ No. 17, 212. *Gilia* ^{*cana* ssp. *speciformis* A. + V.}
~~*latiflora* Gray.~~ ^{Great}

Large lavender cor.,
 yellowish throat, darker band betw.
 throat and lobes.

✓ No. 17, 213. *Langbeeria punctata*
 Goodding

✓ No. 17, 214. *Mentzelia*
 often very bushy and
 rank in habit

✓ No. 17, 215. *Astragalus*
 Cor. pale or whitish.

✓ No. 17, 216. *Glyptopleura setulosa*
 Its large white cor-
 ollas (ligules) make showy cups set

April 27, 1935

in the sands of the wash. Its stems,
 so sparsely branched and fleshy, are a
 bit entangled in the habit of the plant body.

✓ No. 17, 217. *Eriophyllum fringilei*
 Inconspicuous little bodies in
 the wash sands.

✓ No. 17, 218. *Coreopsis*

One of the most
 abundant animals at collecting spot.

✓ No. 17, 219. *Lupinus* Discarded ^{9/85}
 (insect Damage) Common. Cor. indigo-
 blue, its white spot (of banner) sharp-
 edged.

✓ No. 17, 220. *Cryptantha circumscissa* (Jtn.)
 = *Greeneocharis circumscissa* Rydb.

- An auto with a covered body and racks
 of plant drivers on sides caused me to stop.
 It is Dr. C. B. Wulff, Botanist for the Rancho
 Santa Ana Botanic Garden, on a collecting
 trip. His auto is fitted up with drying
 racks for drivers on sides of engine. Inside
 the body, in back of driver's seat, is a large com-
 partment containing a hatchette, gasoline can,
 shelves for books, a folding bed, leaving
 large space in center for storage. He can
 write up notes and handle drivers (cont. p. 186)

"Second Summit" (of Barlow's people),
(on road to Paradise Spring), Calico
Mo., April 27, 1935.

San Bernardino Co.

✓ No. 17, 221. *Mentzelia*

✓ No. 17, 222. *Poa scabrella* (Thurb.) Benth.
(det. Beecher Crampton, 7/76) ex Vasey
This grass grew on

a rocky outcrop.

✓ No. 17, 223. *Delphinium*
Parishii Gray
det. Rea. July 1954

✓ No. 17, 224. *Ischscholtzia*
minutiflora Wats. Sandy wash.

✓ No. 17, 225. *Eriogonum trichopes*
No. 17, 225a. *Eriogonum inflatum* var. *inflatum*
(Sheet found as 17, 225, Maria H. Hano, Oct. 1968)

✓ No. 17, 226. *Festuca bromoides* L.
(det. Beecher Crampton, 7/76)
This grass on same

habitat as noted top p. 183.

✓ No. 17, 227. *Pectocarya retosa* Gray

✓ No. 17, 228. *Amsinckia tessellata*
Gray.

3250 ft. April 27, 1935.

(Set on fine gravelly, sandy, rocky slope of loose
texture, soft and yielding, - except as noted).

17, 229.

✓ No. 17, 229. *Oenothera*

Notice the peculiar leaves

and their undulate margins.

✓ No. 17, 230. *Careopsis bigelovii*

✓ No. 17, 231. *Syntherisma*

✓ No. 17, 232. *Thelypodium lasiophyllum*

✓ No. 17, 233. *Lupinus*

Cor. lavender, aging to

white. This is utterly different from
the others of the small-podded group
in the Great Valley.

✓ No. 17, 234. *Hordeum leporinum* Link
(det. Beecher Crampton, 7/76)

This grass in shelter of
cliff, an undoubted introduction to

the desert.

✓ No. 17, 234a. *Bromus rubrens* L.
(det. Beecher Crampton, 7/76)
* Ap. 182-183. Grass with 17, 234.

"Second Summit" of the Barstow people (on road to Paradise Spr.), Calico Mts., Apr. 27, 1935.

- ✓ No. 17, 235. *Astragalus*
flowers purplish.
- ✓ No. 17, 236. *Thysanocarpus*
laciniatus Nutt.
- ✓ No. 17, 237. *Eschscholtzia*
minutiflora Wats.
Sandy fine-gravelly rocky
hillslope
- ✓ No. 17, 238. *Lotus subpinnatus* Lag.
Flat on the sand.
- ✓ No. 17, 239. *Linanthus dichotomus* Benth.
- ✓ No. 17, 240. *Distelostemma pulchellum*
~~*bracteata multiflorum*~~
(Benth.) Heller. Heads deep-seated.
Longer and longer anthers with 2.
very long lanceolate white acute
lobes attached to their backs and
much exceeding them. Slightly
shorter anthers alternating, no appen-
dages, all set on the same tube
which is short but distinct and a
distinct crown on the perianth
tube. The appendages and anthers.

3200 ft. Apr. 27, 1935.

(Nos. 17, 235 to 17, 240, on fine gravelly
sandy, rocky hillslope, texture soft, loose)

all are arranged in such a way,
so approximating as to make 3
circular entrances, to the cavern
below, about the style. This en-
trance was filled with red midge,
very active little insects, presumably
feeding on the pollen.

- ✓ No. 17, 241. *Stipa speciosa* Trin. Rup.
(det. Beecher (Crampton, 7/75))

This grass is of the
rocky cliffs and quite common.

- ✓ No. 17, 242. *Stephanomeria pavidula*?

This composite forms
as it grows the most amazingly
intricate body, a lattice work in three
dimensions, that can be imagined.
The vegetative lattice of last year is
involved somewhat with the new.
This grew in the shade of a cliff.
It is only in young growth but
is taken for its leaves.

186

Camped on a low lava hill within about 5 or 6 miles of Paradise Spring about 12 mi. N. of Calico Mts. [Paradise Mts.]

✓ No. 17, 243. *Lepidium*

✓ No. 17, 244. *Monoptilon*

✓ No. 17, 245. *Oxytheca perfoliata*

✓ No. 17, 246. *Lepidium*

✓ No. 17, 247. *Pectocarya recurvata*
Gtn.

✓ No. 17, 248. *Euphorbia*

✓ No. 17, 249. *Langloisia punctata*
Gooding

— Dr. Wulff says: *Cereus giganteus*, a lot of it in the Whipple Mts.

— Cont. from p. 181 at bottom.
without being plagued by the wind,
the great difficulty in the desert.

✓ No. 17, 250. *Chorizanthe*

✓ No. 17, 251. *Calycoseris*

2800 ft. Apr. 28, 1935 (altitudes [±])

San Bernardino Co. all footnotes p. 186)

187

✓ No. 17, 252. *Phacelia crenulata* Torr. Cor. indigo-blue.

✓ No. 17, 253. *Nama pusillum* Lem.

Prostrate. Cor. whitish.

✓ No. 17, 254. *Mentzelia*

Cor. large, golden.

Shelter of bushes.

✓ No. 17, 255. *Lepidium*

✓ No. 17, 256. *Erigeron pusillum*
T. & G.

✓ No. 17, 257. *Gilia* ^{cana (Jones) Heller} ~~*latiflora* Gray~~
ssp. *speciformis* A. & V. Grant

✓ No. 17, 258. *Malacothrix glabrata*

✓ No. 17, 259. *Chamaetis*

③ *Fremontii* Gray Some heads of some individuals pink, others on same plant white.

✓ No. 17, 260. *Cryptantha barbigera*
Greene var. *inops* (K. Bdg.) = *C. nevadensis*
Nels. & Kam.

over-night camp, evening of Apr. 27, at "Lava Camp," region of Paradise Spring.

* Altitudes to and this book are rough estimates made by aid U. S. Contour Map, 1914. Det. Dept.

✓ No. 17,261. *Nemacladus*
Color and markings

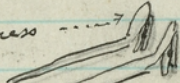
same as no. at Burston

✓ No. 17,262. *Cryptantha angustifolia*
Greene.

✓ No. 17,263. *Linanthus demissus*
Greene.

✓ No. 17,264. *Stylocline micropoides* Gray
This Filaginoid plant
was rare.

✓ No. 17,265. *Nemacladus*
Cylinders of glands 2 or
3, reflexed from the two promi-
nent processes on upper side of
stamen tube at base. Upper pet-
als with brown spot at apex.
Lower petals approximate by edges
so as to appear one. Corolla
white

gland press.  ← cylindrical structure
on gland.
filaments

In the case of the other species

the three cylinders are thrust backwards
towards the upper lip and are
borne on short gland processes.

No. 17,266. *Eriogonum maculatum*

✓ No. 17,266a. *Linanthus bigelovii* Greene. ^{Near Garlic sp.}

✓ No. 17,267. *Rafinesquina* ^{See below.}
neomexicana

flats near Tiefort Mt. Corollas pure
white, the heads large and very
attractive.

✓ No. 17,268. *Eremalche*
~~*Sphaeralcea*~~ *rotundi-*
folia (Gray) Greene

✓ No. 17,269. *Hymenoclea salsola*

T. & G.

✓ No. 17,270. (*Erigeron*) *Haplopappus*
Cooperi (Gray) Hall Rarely an occasional
ray.

— *Linanthus bigelovii* Gray var.
jonesii Jepson & Mason. cf.
no. 17,266a. = *L. jonesii*
Greene.

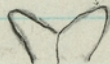
190

Granite Mts., nr. Mohave Desert
(s. of Anawatz Mts.)No. 17, 271. *Eriogonum nidularium* Cov.No. 17, 272. *Astragalus*No. 17, 273. *Astragalus*This *astragalus*
seems rare on the flats.No. 17, 274. *Thelypodium**Carlanthus cooperi* (Wats.) PaysonNo. 17, 275. *Arenaria macrodonia* Wats.

Cor. white. Large

yellowish quadrate glands behind
each of the 10 stamens at base.
Petals cleft at apex!! Rocky
outcrop.No. 17, 276. *Mirabilis*

Corolla-lobes obovate, the

lobes
erect

a little pointed.

dense bush 2

ft. h. Cor. white. Free flowering.

3500 ft. Apr. 29, 1935

191

No. 17, 277. *Illisia* = *Eucrypta chrysanth-*
hemifolia Greene, Cor. white, very small,
var. *bipinnatifida* Constance.
Its lobes short, broad, rounded,
spreading (not rotate), the cor.
deeply bowl-shaped, not exceed-
ing sepals. Sepals accrescent,
becoming rotate. Trailing, in
shade of rocks.No. 17, 278. *Oenothera*Flats yellow with
it for many acres.No. 17, 279. *Encelia*

Broad low (2 ft. h.)

bush.

No. 17, 280.

Haplopappus
linearifolius var. *interior* 2 to 3 ft. h.,
(Cov. Jones)

Broad, fleecy-topped.

No. 17, 281. *Poa scabrella* (Thurb.) Benth.
(det. Beecher (Crampton, 1976))
This grass occurs inhills; common but not abundant,
as a desert grass.

192

Granite Mts., nr. Mohave Desert.

(s. of Grand Canyon)

- ✓ No. 17, 282. *Stipa speciosa* Trin. & Rupr.
(det. B. Crampton, 7/76) This grass occurs in

very heavy shrubs. It is abundant, judged as a desert grass.

- ✓ No. 17, 283. *Sphaeralcea ambigua* Gray
showy crimson
or somewhat brick-red cor.

- ✓ No. 17, 284. *Galium*
dense bush 16 in. h.

- ✓ No. 17, 285. *Nicotiana trigonophylla*
Dunal. Woody base very
short, that is the root-crown.

- ✓ No. 17, 286. *Brickellia arguta* Rob.
This composite forms
a dense rather thickly worn
bush 1 1/4 to 1 1/2 ft. h. and twice
as broad.

* Granite Pass, through which the road
runs is 4255 feet.

4000 ft.

Apr. 29, 1935

193

- ✓ No. 17, 287. *Coleogyne*
~~*Coleogyne mexicana* var.~~
~~*Ramosissima*~~
~~*Stansburiana* (Torr.)~~
This rosaceous
bush is common on the rocky
peak above camp.

- ✓ No. 17, 288. *Thamnosma montana*
fls. impetuous brown

- seems rare.
✓ No. 17, 289. *Haplopappus linearifolius*
var. *interior* (Cov.) Jones
Flat-topped bushes

- 2 ft. high, very floriferous
✓ No. 17, 290. *Arabis glaucovalvula* Jones
Rare; rocky slopes
✓ No. 17, 291. *Pterostegia drymarioides*
shade of rocks.

- ✓ No. 17, 292. *Arabis*
Petals purple, limb
↑ pink -
rotate, but spreading just a little.

- ✓ No. 17, 293. *Ellisia membranacea*
Benth. Cor. white, saucer-
shaped, 15 lobes blue, 3
purple spots on each (the
central spot largest). Cor. 2
lines wide. Capsule spiny,

turning purple in maturity. shade
of rocks.

✓ No. 17, 294. *Cryptantha utahensis*
(Gray) Greene.

✓ No. 17, 295. *Gilia latifolia* ^{cana (Jones) Heller} Gray.
ssp. *speciformis* A. + V. Grant
Cor. pink with

purple tints. Tuft of basal leaves
amazingly small.

✓ No. 17, 296. *Pectocarya setosa*
Gray. granite sand.

✓ No. 17, 297. *Thysanocarpus*

✓ No. 17, 298. *Emmenanthe pendula*
flora Bth. Rocky slopes.

✓ No. 17, 299. *Arabis glaucovalvula*
^{Jones}
Sep. 196. Pods glaucous
Rocky hills.

No. 17, 300. *Arabis*
Rocky hills. See p. 196.

✓ No. 17, 301. *Stylocline micropoda* Gray
This filaginoid plant
is not common.

- Our overnight camp, evening of
April 27, was in a little gulch
just over the summit of Granite
Pass, a tiny sandy flat, about
100 yards below the road sign.
It is surrounded by rocks, but
the wind is blowing a tremen-
dous gale in the night,
seeming enough to lift me
off the ground, as I lie in
my sleeping bag.

✓ No. 17, 302. *Pterostegia drymarioides* F. M.
Per. segments 6, lau-
evolute. Stamens 9!! in one fl.

examined; also 6, 5. Stigmas 3.
Two closely approximate wings
on back of fruit - side by side.
Fruit white. Shade of boulders.

✓ No. 17, 303. *Microseris linearifolia*
Also coll. Wulff.

✓ No. 17, 304. *Phacelia cryptantha*
Greene.

Rarities

The finest things are, in the desert, often found in the shelter of thorny bushes. Rarities not found otherwise, often occur there. Such rarities may be very inconspicuous and easily overlooked. Such an one is *Arabis*

no. 17, 299, which blends with the general desert hue. It is difficult to find enough to make a sheet of it. Likewise *Arabis*

no. 17, 300. *Ellisia membranacea* Bth. no. 17, 293, was spotted under an *Ephedra* bush by Dr. E. B. Wolff's keen eye.

No. 17, 305. *Cryptantha pterocarya* (Torr.) Greene.

No. 17, 306. *Chorizanthe thurberi* (Gray) Wats.
Wulff.

No. 17, 307. *Phacelia distans* Bth.

Sandy flats. Cor. light blue.
No. 17, 308. *Gilia brecciarum* Jones
Gilia latiflora Gray.
ssp. *neglecta* H. & V. Grant
Cor. lavender-blue,

greenish-yellowish throat, purple tube. Sandy flats.

No. 17, 309. *Lycium andersonii* Gray. Bush 2 1/2 - 3 ft.

Cor. pale lavender, tubular-funneliform. Beavers of the thick somewhat pear-shaped fleshy type.

Corolla very slender, glabrous, 6 1/2 times as long as calyx, its lobes 1/7 as long as corolla.

↑ whole

- ✓ No. 17, 310. *Glyptopleura setulosa*
Valley flats showing with it.
Band Sun.

- ✓ No. 17, 311. *Gilia* ^{ana (Jones) Heller} ~~latifera~~ ^{Gray var.}
~~ssp. speciformis A. + V. Gray~~
~~longituba Jepson~~. Mesa slope n. of

Granite Mts., that is in the
valley n. of Granite Mts.

Corolla pink, its tube purple,
its throat whitish, more or less
purple-veined or -striated.

Sandy soil. Widely common.

- ✓ No. 17, 312. *Eriogonum pusillum*
T. & G.
Sandy flats. Fls. yellow.

Abundant; all over the valley.

- ✓ No. 17, 313. *Chaenactis*
Fls. white. The most
abundant and widespread
of flowering plants, at this
time, on the valley levels,
and mesas.

- ✓ No. 17, 314. *Oenothera*

Cor. bright golden
yellow. Very common on sandy
flats and mesas.

- ✓ No. 17, 315. *Astragalus acutirostris*
^{Wats.}
Trailing, on gravelly

flats

- ✓ No. 17, 316. *Eriogonum elichopes*
Stems inflated or not
inflated; coloring mostly shrub.
Bare areas in the valleys
and on hillslopes and giv-
ing a yellow tint to "fine"
areas of several acres.

- ✓ No. 17, 317. *Astragalus*
Banner white, Keel
white but purple-tipped above,
wings purplish, whitish at base.
Racemes fertile only below.

- The display is by *Chaenactis* (No. 17, 313),
Glyptopleura (No. 17, 310), *Gilia*, magenta (No.
17, 311), *Oxytheca perfoliata* (very abun-
dant).

San Bernardino Co. Cal., Mohave Desert, Apr.
200 3500 ft. (29, 1935.)

- ✓ No. 17, 318. *Senecio douglasii* DC.
Bush 2-3 ft. h. Leaves
fleshy, almost subulate at tip. Rays
yellow, 9, 10, 11.
✓ No. 17, 319. *Dichelostemma pulchellum*
~~*multiflorum*~~
~~*brodiaea* (Sander) Heller~~

With the characteris-
tic stamens and circular open-
ings of the plants in

- ✓ No. 17, 320. *Calochortus Kennedyi*
Porter. Abundant on a finely
rocky or coarse gravelly hill.
slope, with good soil between.
Leaves often coiled on upper
half - the coil lying out on
the ground a half leaf length
from the stem.

- ✓ No. 17, 321. *Cryptantha nevadensis*
Nels. & Ken.

Chorizanthe thurberi (Gray) Wats.
No. 17, 322. *Orythaea*
Sandy bottom.

- ✓ No. 17, 323. *Minulus*
Cor. red, throat yellow. Sandy mts.

- ✓ No. 17, 324. *Castilleja*

Persons met. at St. Helena.

- Arnold Metzger, St. Helena (He came around the corner of the Sanitarium and meeting me, a stranger, said: That tree [labeled Oregon oak] looks like a Mush oak [*Quercus lobata*]. He was right. The label was wrong. He lived long ago in Corn Valley and "chopped wood" out of the native oaks. He knew my sister, Mrs. Frank Peltier, and her husband, in the old time.
- John Philips, Assemblyman from Riverside Co. lives at Banning.
- Chas. Winslow, Order Railway Men,
- Chas. Carter, Boiler Man, Oakland, ^{Berkeley}
- William Young, merchant, Napa
- Bode, Yountville Game Farm,
- Dr. C. A. Gregory, Sanitarium,
- Elder A. J. Werner, Sanitarium.
- William Young of Napa, brother of the Los Angeles Young who ran for Governor on the Democratic ticket.

Co-operators

- Buckalew, Harry E., 2800 Nevada st., Fresno, Calif. (offered to co-operate)
- Burton, Robert, R. 1, Box 160, Santa Cruz.
- Lester Rountree or E. J. Clevinger, R. 1, Box 178, Carmel.

Field Memoranda

- *Palafoxia elumbosa*. cf. F. B. 30: 206.
- Dillaney, Ranger at Mohawk
- Lloyd Smith, Grazing on Plumas
- W. J. Morrow, R. 4, Box 253, San Jose.
(Wargreen)
owner of Santa Gabriel Valley range.
- *Opuntia chlorotica*: s. of 19 Palms, e. end of
range; betw. Goffe & Lima.
- Mr. Sven Hilder Barton, Barton School,
Topsanga, Calif. called
c. Aug. 1934.
- Dr. C. A. Gregory, Sanitarium, St. Helena.
- Dr. Palmer, " " " "
- C. E. Hutchinson, Los Angeles.
- Susan W. Hutchinson, Los Angeles.
- Frashers, Photos, 151 E. Second St.,
Pomona.

There is also a photo at Palm Spr.
who has a coll. of desert scenes.

- W. J. Morrow, R. 4, Box 253, San Jose.
- R. A. Parker, 1119 Laura ave., Fresno.